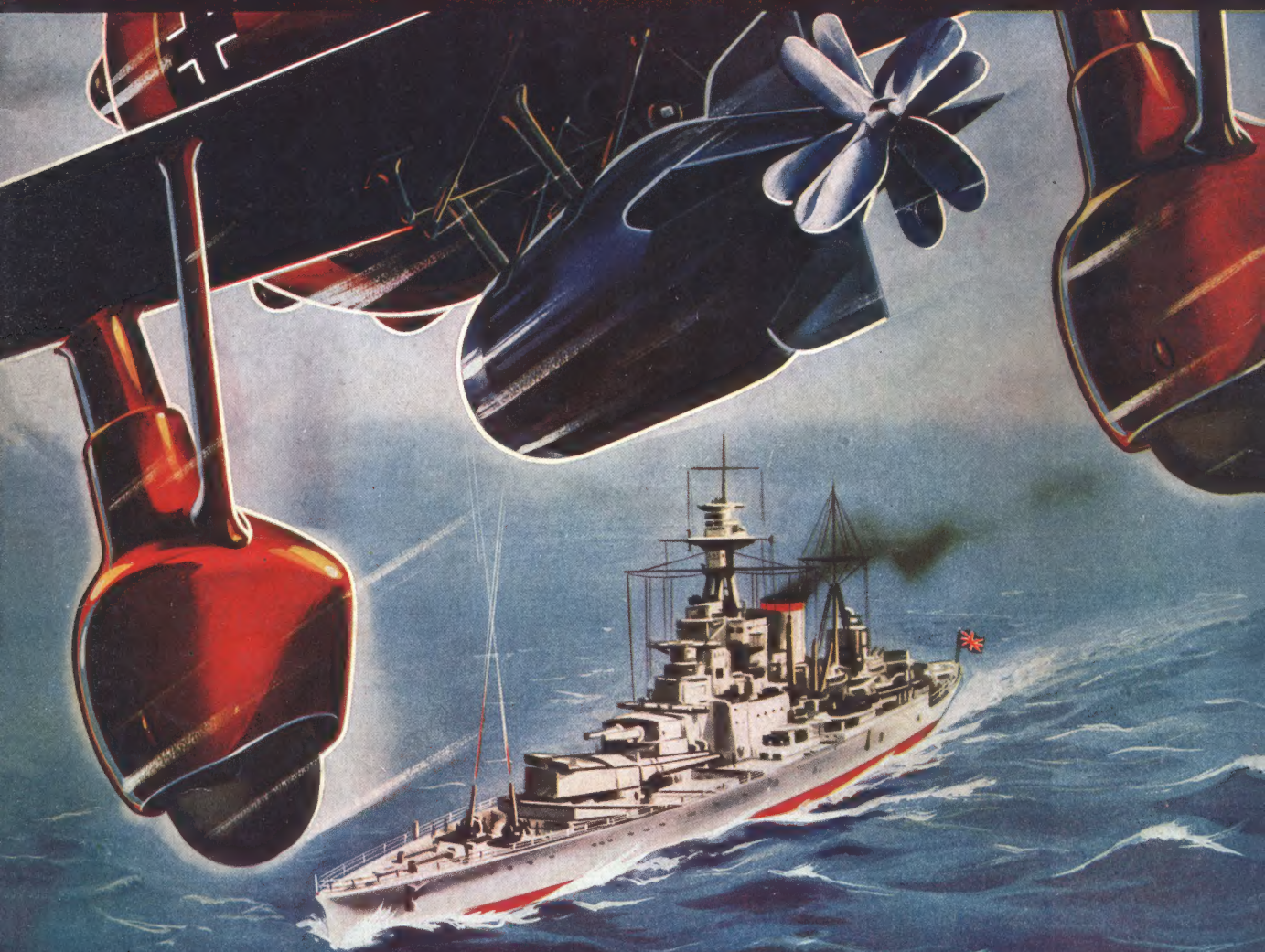


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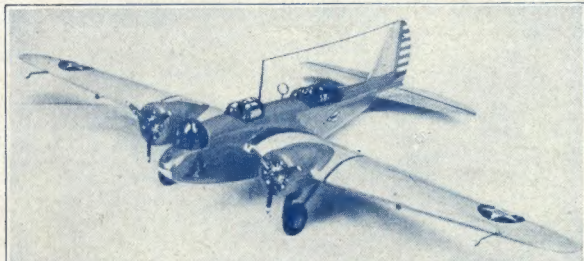
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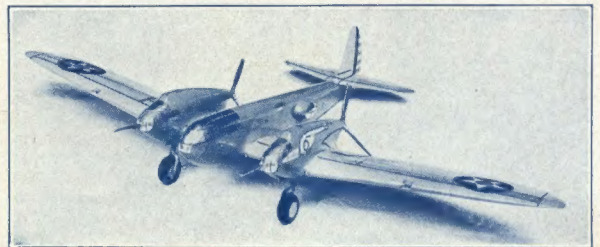
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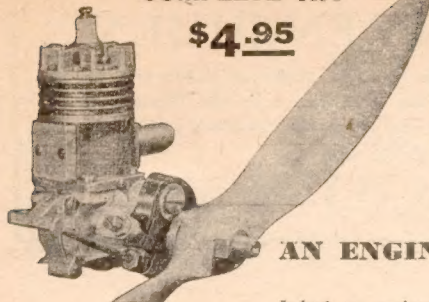
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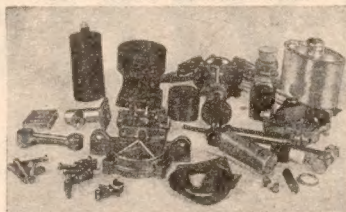
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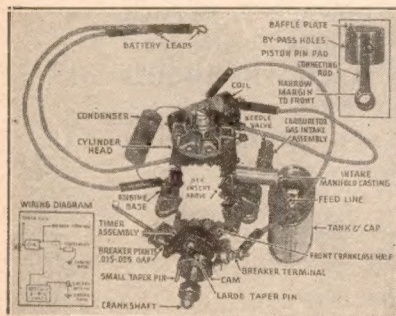
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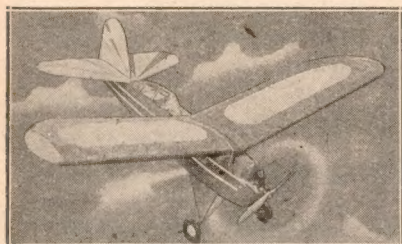
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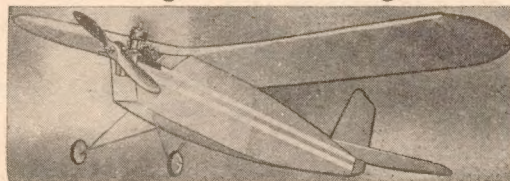
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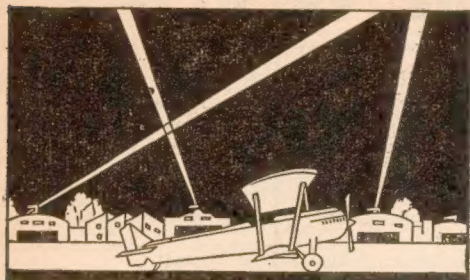
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VOLUME XXXIV

JANUARY, 1940

NUMBER 2

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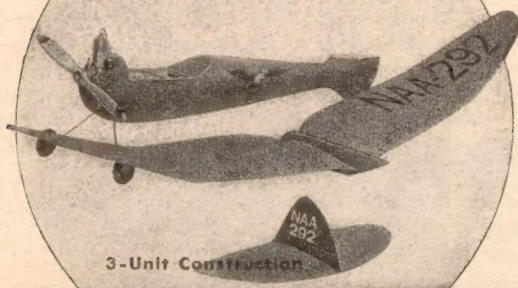
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CHAPTER I

THE MAN WHO EXPLODED

FOR TEN MINUTES, no one had passed the shielded blue war-lamp on the north side of the Place de la Concorde. Beyond its faint blur, darkened Paris lay black as the inky sky above, its streets silent and empty. From somewhere above Montmartre, a tower clock mournfully boomed the hour of eleven.

As the last note died away, footsteps sounded from the direction of the Hotel Crillon. Their somewhat uneven cadence was interrupted by a loud thump, followed by an oath as some one stumbled over a curbstone.

"Confound this black-out business! I better hire me a trained owl," an irate voice announced. "And why don't th' Frogs build their sidewalks straight?"

"The sidewalk's straight enough," said another voice. "I told you to lay off that last brandy-and-soda, and—Look out! There's a post!"

"One moment, *messieurs*," said the post. Moving out of the shadows near the dim blue light, it materialized into an *agente de police*.

"Post, huh?" snickered the man who had fallen over the curb. "Now who's tight?"

His companion, a tall man with an easy, indolent manner about him, addressed the policeman. "Too much cognac," he whispered hoarsely. "He's been disappointed in love—pay no attention to him, officer."

The *agente* eyed the shorter man with disfavor, and the recipient of his regard returned the look with equal sourness. He was a thickset man with the build of a wrestler, and his crooked nose—the relic of a long-forgotten brawl—gave his battered features a belligerent, lopsided expression.

"He looks like a certain Apache known as the 'Gorilla,'" said the policeman, "except that the 'Gorilla' has only one eye."

"Who're you callin' a gorilla?" roared the other man.

"Listen, you flap-eared Frog—"

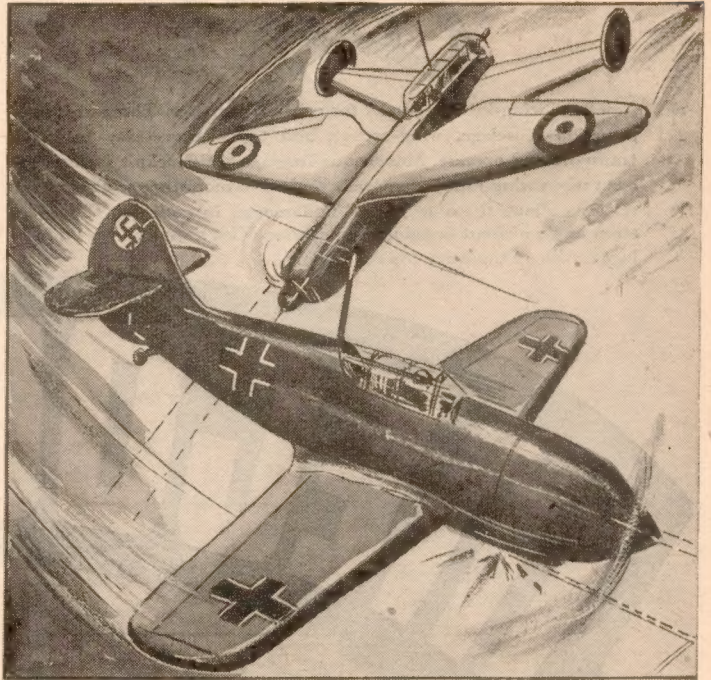
"*Cochon!*" shrilled the *agente*.

"I will teach you to call me the frog!"

"Calm down, both of you," said the tall man. He hurriedly produced a passport stamped with a special seal, to which was attached also a certificate signed by the Prefect of the Surete.

"Richard A. Knight," the *agente* read, blinking at the Surete seal. "And this other man, *monsieur*?"

The chunky man brought out a similar passport, and the policeman read the name, "Lawrence Lothario Doyle."



"Very well, *messieurs*," he said gruffly. He gave them a stiff salute and stalked away into the gloom, muttering to himself.

Dick Knight waited until he was out of earshot. "Next time, I'll let them drag you to the Bastille," he growled. "I told you we've got to be doubly careful over here. A lot of people wouldn't understand if they found out Washington had a couple of secret agents in France."

"Do I have to let some dumb Frog call me a gorilla?" retorted Doyle.

"Pretend you're deaf," grinned Knight. "At that, we're lucky the light wasn't good enough for him to see the date on those passports and seals. Come on, we'll be late."

"Swell way the striped-pants boys at the embassy are givin' us a run-around," complained Doyle. "You'd think we were a couple of polecats. How come we can't even plant our dogs inside th' place when the State Department sent us here to keep an eye on things?"

"Something's come up, that's obvious," said Knight. "When I called Rodman he said to meet him at eleven-fifteen, on the east side of the Obelisque. He sounded worried, and even when I told him I was calling from a booth outside the Crillon he wouldn't say any more."

"Aw, those birds always try to make things mysterious," snorted Doyle. "And—"

Paris blackout! In the leaden silence of its inky shadows, Dick Knight felt far removed from the raging sky battles of the Front. But when that searchlight flashed its blinding beam from the Tuileries, peace was dispelled as well as the pall. For Fate was unveiling the tortured soul of the long-dead Rene Landrau. And his vanishing spectre was destined to turn Dick Knight's eyes upon a sinister mirror whose glazed surface reflected the grim image of—Death!

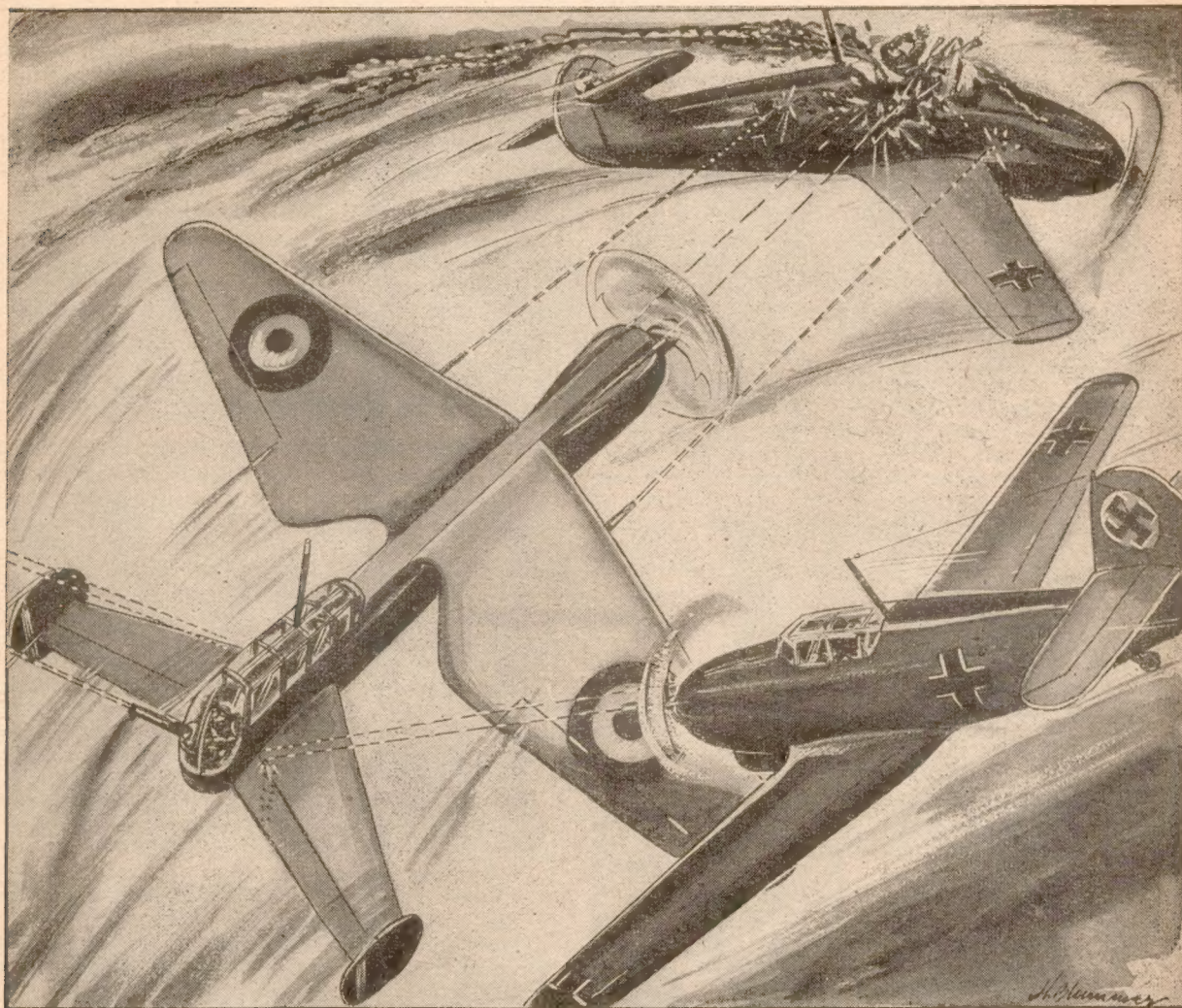
HE STOPPED as Knight suddenly gripped his arm. A radio amplifier had blared up

STARTLING DICK KNIGHT SKY WAR MYSTERY

By Donald E. Keyhoe

Author of "Falcons of the Flame," "Fighters That Time Forgot," etc.

Illustrated by Jon L. Blummer



Knight jabbed at the stick-button of the speeding Delanne—and in one terrific blast the four guns riddled the fleeing Messerschmitt.

for an instant, just ahead of them. Then as swiftly it was silenced.

"You fool, you'll have an *agente* down on us," a man snarled in German.

"It wasn't my fault. Von Lehr suddenly boosted his power output," mumbled another speaker. Knight tiptoed closer, made out the vague shape of a car parked without lights. There was a faint click, then a whispering voice spoke.

"Go head, F-7 . . . very well, we will be ready in that area."

"What did he say?" demanded the gruff voice.

"He is afraid the man may try to drop near the Government offices on the Quai d'Orsay. We must keep him from reaching the French."

Gears meshed with a muffled sound. Doyle lunged forward, jerking a gun from under his coat before Knight could stop him.

"Get 'em up, you rats!" he shouted.

"*Lieber Gott!*" came a howl from inside the car. The machine leaped ahead violently. Doyle blasted a shot after it as it vanished in the darkness.

"You idiot!" snapped Knight. "This isn't *our* war. Remember our orders. If we nabbed those devils it would have exposed the whole set-up when we turned them over to the Surete. We're here for just one job—to keep tab on that American volunteer outfit. Come on, that *agente* will be prowling over here to see who fired the shot."

They started across the Place de la Concorde, with Doyle asking: "What were those spies yapping about?"

Knight translated the brief conversation. But he had barely finished when the growl of sirens broke the quiet, rising from every direction to an ear-splitting shriek.

"Air-raid!" yelled Doyle. "Say, what was that about some guy droppin' near the Quai d'Orsay?"

"Hold on," said Knight, as Doyle headed toward the bridge across the Seine. "We've got to meet Rodman—he'll be here any minute."

"With an air-raid on?" scoffed Doyle. "That bird will be ducking for the deepest hole in Paris."

"Well, maybe we could just take a look-see," said Knight.

"Now you're talkin'!" chortled Doyle. "Let's move—I gotta hunch things are goin' to pop."

BUT they had hardly gone a hundred feet across the darkened Place when a sudden flash of light, above the Tuileries Gardens, halted them in their tracks. The next moment the roar of a motor rose above the wail of the sirens. Two streams of light twitched downward, from just under the cloud blanket, lights that came unmistakably from the wings of a diving plane. Almost at once a searchlight blazed up from the Tuileries, flicking across the ship.

It was a Potez light bomber. The pilot hastily rudered out of the beam, just as a blast of tracers flamed down at the ship. The searchlight tilted, and another ship plunged through its bright rays. Knight started as he recognized the familiar outlines of a Curtiss Hawk, the 75-A type which the French had bought before the outbreak of war.

"What th' devil?" erupted Doyle. "Two Frenchies fightin' each other!"

The Potez swerved toward the Seine, but the Hawk darted in furiously, all four guns blasting. The bomber zoomed, swung back across the Tuileries. From an emplacement in the Gardens, a machine-gun suddenly cut loose, hurling a sparkle of tracers between the two ships while two searchlights frantically pawed at the planes. It was evident that the ground men thought the fighter pilot had made a mistake in identifying the Potez, but with a sharp reversement the Hawk evaded the light and charged in again at the bomber.

Down went the nose of the Potez, and for a second Knight thought it would crash. But a hundred feet from the Obelisque, the nose came up and the pilot fishtailed violently for a landing in the Champs Elysees. The fighter screamed down for another attack. Ground guns again clattered, and this time their bursts came perilously close to the Hawk's wings. The fighter chandelled, with the lights following swiftly as it crossed the Seine.

Knight found himself running toward the Potez, his earlier caution forgotten. The bomber braked to a jerky stop, winglights still on, and in a few seconds he saw the pilot scramble out through the rear turret, shoving a bulky object up past the opened enclosure. Apparently he was the only person aboard. Climbing out onto the wing, he dropped to the ground and reached up toward the object on the wing. In the reflected glow of the lights, Knight saw that it was a large aerial camera, but the man's face held his gaze. It was a face so handsome as to be startling, but in a stark, rigid fashion as though the features had been molded from stone.

"Dick—there's that car again!" Doyle shouted.

Knight spun around in time to see an automatic poked from the rear window of the machine. He leaped back as the gun blazed, and the car raced by. He thrust his hand in toward the .38 in his armpit holster—then stopped, staring at the Potez pilot.

The man was staggering back from the wing, a grayish haze momentarily surrounding his figure. His hands raised claw-like toward his face, then stiffened as a

violent tremor shook his body. He seemed to be in the throes of some terrible agony, yet not a sign of pain appeared on that grimly handsome face.

The spy-car skidded wildly toward the curb, and Knight had a split-second glimpse of the driver's ashen features as the man watched the bomber pilot. A frightful scream suddenly came from the throat of the stricken pilot—a scream drowned by the roar of the diving Hawk.

Four fierce red eyes winked down at the group in the street, as the fighter pilot unleashed his guns. The car driver threw his machine into reverse, sent it whirling back from the danger zone. But the Potez pilot never moved. Hands still uplifted, he stood as though frozen to the spot. Something about that motionless, dreadful figure held Knight transfixed, until Doyle seized his arm and dragged him to one side.

With a grinding roar, the Hawk flashed down diagonally across the boulevard. Four streaks of tracers stabbed the paving, whipped ahead to where that rigid, now silent figure stood. There was a fraction of a second when Knight waited, helplessly watching, his fingernails digging into his palms.

Then the tracers struck.

There was a blinding flash, a stunning concussion—and the Potez pilot was gone!

THE EXPLOSION had thrown Knight to the ground.

He stood up, gazing incredulously across the boulevard. Flame was spurting up from the bomber, where the tracers had pierced its fuel tanks. Under the wings, he saw a charred spot, with crumbled bits of paving. But of the pilot's body there was not the slightest trace.

The crack of a pistol shot aroused Knight from his stupefaction. One of the men was leaning out of the spy auto, firing at them as the car sped down the Champs Elysees.

Knight gave Doyle a shove, and they ran, doubled over, away from the glare of the flaming ship. They had hardly reached the shadows of the nearest parkway when a police car and an ambulance appeared, followed by several mobile guards.

"They'll be searching around here when they don't find any one near the ship," Knight muttered. "We'd better circle back to the Place de la Concorde."

Doyle shook his head dazedly as he turned to follow. "I still can't believe it," he mumbled. "One second there he was—and then, blooey, he's gone!"

"The whole thing was incredible," Knight said grimly. "He stood there like a statue even after the Hawk dived at him—as though he was paralyzed."

"Yeah," Doyle said thickly. "He looked like he'd froze stiff. But how could a man disappear th' way he did?"

"Disappear?" Knight repeated. "You don't think he did any vanishing act, do you?"

Doyle halted, stared at him through the gloom. "What else?" he demanded.

"The man exploded," Knight said slowly.

Doyle's jaw dropped. "Are you clean screwy? How th' devil could anybody explode?"

"Don't ask me. But that's what happened. No one ever did a vanishing trick like that except on a stage, with all the props set for it."

"I think we both need a drink," declared Doyle.

"Maybe you're right." Both men were silent as they made a roundabout way to the bridge side of the Place, then started back in the direction of the Crillon. A small crowd had gathered, in spite of the air-raid warnings. But the people were being held at a distance from the burning ship by police and mobile guards. Knight looked around carefully for some sign of Captain Rodman, the air attaché of the American Embassy, but he saw nothing of him.

(Continued on page 54)



They Had What It Takes

XXXVI—BILLY BISHOP—GREATEST CANUCK ACE

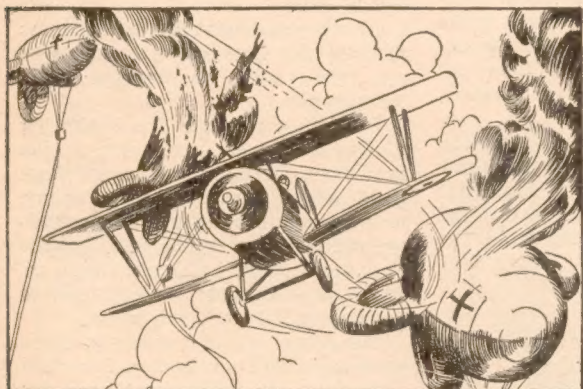
By ALDEN McWILLIAMS



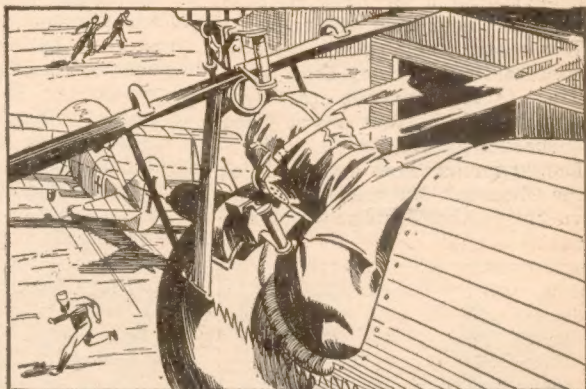
1—Born in Owen Sound, Ont., in 1894, William A. Bishop entered the Royal Military College in 1912. In 1914 he enlisted in the 4th Canadian Rifles, and in 1915, he transferred to the Flying Corps and spent four months in France as an observer. Injured when his pilot made a poor landing, Bishop returned to England, then he took pilot training.



2—On March 31, 1917, Bishop was ordered to destroy a particular German observation balloon five miles behind the enemy lines. While engaged in that duty he was attacked by an enemy scout, which he forced down in short order. He then destroyed the balloon with incendiary bullets. For this job "Billy" Bishop received his first decoration—the Military Cross.



3—He attacked three balloons on April 24, just three weeks later, sending two down in flames. Next day, Bishop received his notice of having been awarded the Military Cross—and he celebrated by bringing down another plane. And on the 30th "Billy" engaged in nine fights, bringing down one plane and forcing two others to land in damaged condition.



4—Bishop returned to France in May, after being on leave in England, and on June 2 he carried out a long-cherished plan of attacking a German airdrome. Passing over an enemy field, he saw seven machines preparing to take-off. Bishop dived, raked the drome with bullets. He destroyed two planes on the ground and got another in the air.



5—Air Marshal Bishop advocates wooden military airplanes and definitely believes that they are superior to metal craft. For years he has argued that spruce ships are easier to build, need less expert repair, and have all the desirable qualities of the metal jobs. And he is now active in putting over a new R.C.A.F. wooden bomber.



6—Canada is rightfully proud of her Air Marshal, who was the fourth greatest Ace produced by the First World War, having a record of 72 confirmed victories. And at the present Bishop is still fighting—this time to rebuild the Royal Canadian Air Force to help England stave off the threat of Germany's formidable sky horde.

Warplanes Pack Punch!

AND ARMAMENT IS THE ANSWER

By Arch Whitehouse

Popular F.A. writing Ace whose sixteen-victory World War flying record and subsequent exhaustive studies of sky-fighting have made him a leading authority on military aeronautics.

ARMAMENT is still the most important feature of military aircraft. The fastest fighters have been shown up time and time again in the air battles of the present European War. The slower American Curtiss Hawk 75A's and the better-armed Douglas bombers, both now being used by the French, have continually beaten the German Heinkel and Messerschmitt jobs at their own game.

Thus, in spite of what the German propaganda agencies have released for world consumption, the factor is still well on the side of the Allies in air battles. Day after day, the French continue to destroy six to eight Germans with a loss of but two or three of their own planes.

The writer has kept a careful list of casualties as reported so far in the war—and on the Western Front, the

Super-speed! Super-streamlining! Somehow they're grabbing all the publicity in this Second World War in the Air. "But," says Arch Whitehouse, "here's the REAL lowdown, speed or streamlining to the contrary: A fighting plane is no stronger than its guns, and a bomber is no better than its 'eggs'!"

French airmen are defeating the Germans with plenty to spare.

Yet here it has been discovered that most of the tactics of the last war have no place in today's conflict in the clouds. More and more it becomes apparent that armament is the thing and that wild slam-bang sky acrobatics—aerobatics, as they call them—do not fit into the present scheme of things.

According to a French aviation lieutenant who has been in the thick of things on the Western Front, what with the speed of modern planes and the armament at their command, the aerobatics of the First World War days are virtually over. We used to explain that direct-contact air battles lasted but a few minutes. Today, they last but a few seconds.

"After simply making one or two summary maneuvers," explained this French flyer, "you head for the enemy, fire point blank—and it's all over! There is no time for aerobatics. Everything happens too quickly."

He also went on to explain that a chaser (pursuit) pilot has a single trigger on his plane which can release 5,000 rounds of bullets per minute! What chance has another plane—if it gets in the way of that?

This Frenchman's particular squadron completely wiped out twenty German planes in one week while losing but eight machines. He explained also that in his group's experience the Germans never attacked unless they had the superiority of at least three to one, a point which most certainly goes back to the days of the First World War.

Another pertinent fact is that most all countries engaged in the new war are now trying to improve their ammunition.

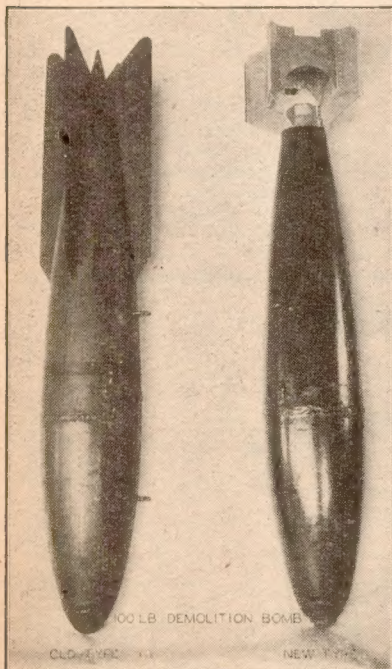
But let's go back to the beginning of this 1939 war in the sky. In the first place, Germany over-ran Poland in the air because Poland was unable to throw against the invader the well-groomed air power she was thought to have. In many reference works we found that Poland was supposed to have some 800 top-notch planes.

Poland never had a chance to make good use of her war planes. Her most important air fields were near the German border, and they were quickly bombarded and put out of action by a Germany that didn't bother to go through the formality of declaring war. What planes, runways, and pilots were left after the first twenty-four hours were mainly second-string machines and personnel.

That they made *any* show against the Germans is one of the miracles of the war. But they did—for the simple reason that they had good guns—both aboard their planes and on the ground.

Seventeen German planes were shot down from the ground in the first day of active service! Thirteen more were destroyed by Polish airmen. By the same token, however, many German bombers, heavily armed with the new Parabellum and Knott-Bremse weapons, outgunned the lighter Polish fighters and soon finished off whatever hopes the Poles had of carrying on.

But Germany has not, at this writing, attempted to raid Paris or any

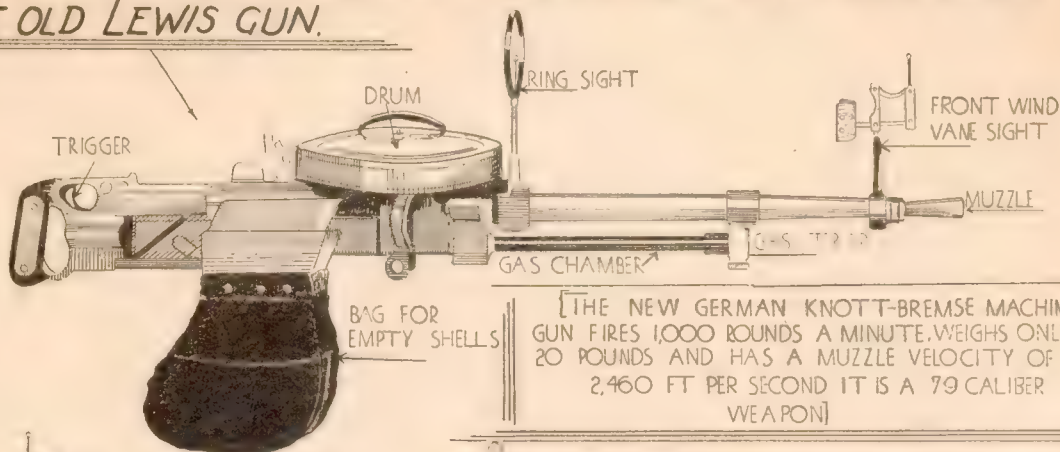


Above: Bombs are most effective when they strike perpendicularly. To help achieve this, new-type tail vances have been devised, as shown here. (U.S. Air Corps photo.)

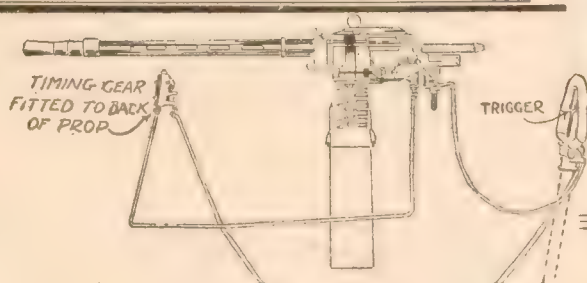
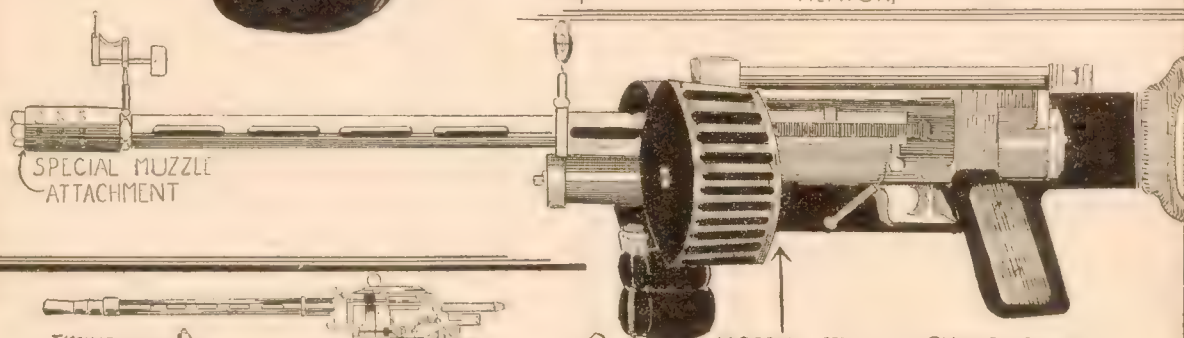
Right: A First World War shot of the author beside a 550-pound "egg" used to demolish large enemy structures.



The new BRITISH VICKERS-K GUN~NOW FAST REPLACING THE OLD LEWIS GUN.

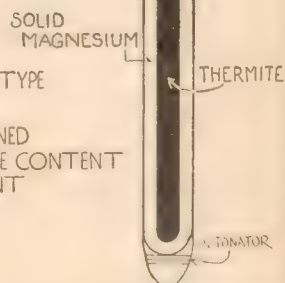
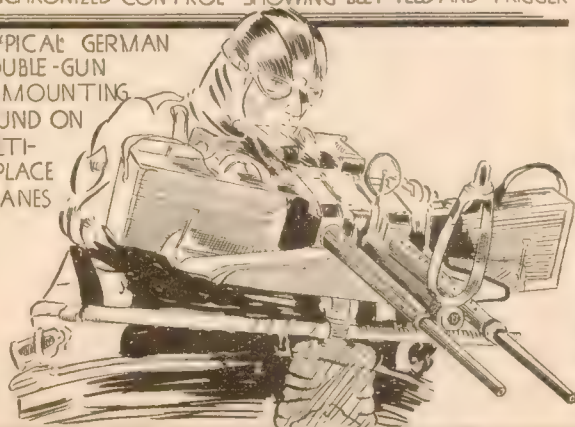


[THE NEW GERMAN KNOTT-BREMSE MACHINE GUN FIRES 1,000 ROUNDS A MINUTE. WEIGHS ONLY 20 POUNDS AND HAS A MUZZLE VELOCITY OF 2,460 FT PER SECOND IT IS A .79 CALIBER WEAPON]



LAYOUT OF 23 mm. MADSEN GUN FITTED WITH SYNCHRONIZED CONTROL SHOWING BELT FEED AND TRIGGER GEAR

TYPICAL GERMAN DOUBLE-GUN MOUNTING FOUND ON MULTI-PLACE PLANES



THE INSIDE STORY OF INCENDIARY BOMB~ IT WEIGHS BUT TWO POUNDS. LENGTH, 14 IN. DIAMETER, 1 1/2 IN.

French point of military importance. They apparently know better. While they have fast Heinkels and Messerschmitts, the French have a lot of machines that are not so fast—but

which are armed with heavy caliber weapons. Air cannon! These guns can outrange and outpunch anything the Germans have. So the Nazi skymen wisely stay away from French de-

tense points. Discretion, you know. Meanwhile, the British have raided Wilhelmshafen, Kiel, and other important points in Germany. They lost planes, yes. They lost many by anti-

"SKY FIGHTS ARE WON BY GUNS—NOT SPEED!"

aircraft fire. The Germans have highly perfected the 88-mm. Flak A-A gun and its range-finding equipment, and the losses over Wilhelmshafen and Kiel were due mainly to the accuracy of this fire from the ground. But in only one instance can we find that British flying men were defeated by German single-seaters.

Later on, British bombers of the Hampden, Battle, Harrow, and Blenheim types carried out a number of night raids against the most important cities in Germany. But these raids did not involve the releasing of bombs. They were simply carried out to distribute those printed leaflets we've heard so much about.

SO MUCH for that "printed armament." Now what's the true story on the guns in use today? Well, on British machines, we seldom see the old Lewis gun any more. It has been replaced on active service machines by the new Vickers K-gun, which looks somewhat like the old Lewis weapon. This gun is drum fed, somewhat like the former Lewis, but the drum is more elaborate and comes in varying sizes depending on the work involved.

We want to tell you that the new Vickers is a very beautiful weapon to look at. It's more businesslike than the old Lewis, although the writer

has much personal affection for the former movable weapon.

The new K-gun has a muzzle velocity of 2,400 feet per second and can fire between 950 and 1,200 rounds per minute. It can be fired from the shoulder after fitting a special shoulder plate and changing the trigger gear to a pistol grip placed under the breech. You'll note in our accompanying drawing that there are no external moving parts such as we had on the Lewis and Vickers of the earlier days.

For shoulder firing, the drum carries 60 or 100 rounds. But larger drums carrying 300 or 600 rounds can be fitted where the weapon is used as a fixed installation.

Unlike the other Vickers gun, the K-gun uses the gas-piston and return-spring system of mechanism. That is to say, just before the bullet passes out of the gun it spins over a special opening in the barrel itself. This is called a gas port. Now this action of the bullet causes a certain amount of the gas to pass through this port and into the gas chamber, which looks like a shorter barrel below.

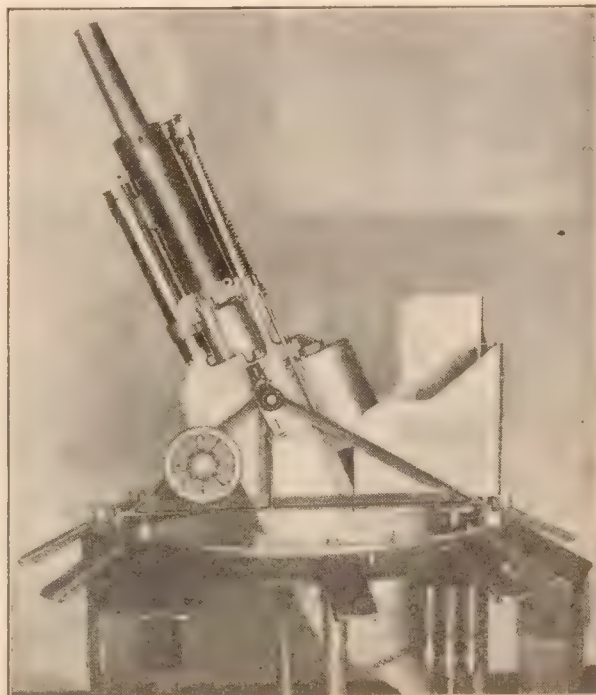
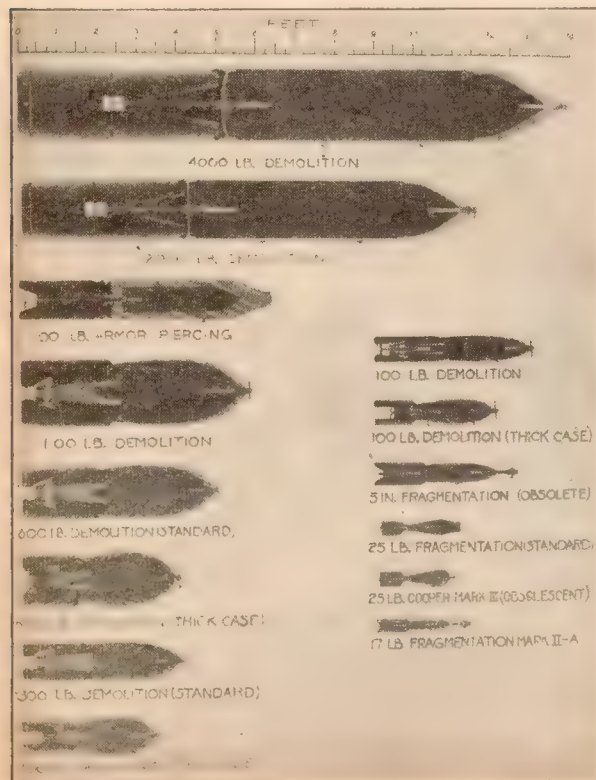
Here the trapped gas pushes back a piston, which in turn actuates a mechanism in the breech which ejects the exploded round out of the gun, removes a live round from the drum, and places it in position opposite the

breech of the barrel for the next shot.

By this time, the gasses have expended themselves and a new force comes into play. This is called the main, or return, spring—which pushes all the recoil mechanism forward again, thus ramming the new bullet into the barrel, locking the breech block at the base of the cartridge, and eventually releasing the firing pin. So a new bullet is fired and the full sequence takes place again.

This is one of the two main systems of machine gun mechanism. In the other—called the recoil-fusee-spring system, and employed in the Maxim, Browning, and earlier Vickers—the gun is fed from a cartridge belt and is fired by a lock mechanism. On the explosion of the live round, recoil takes up the backward movement instead of trapped gas or a piston. The recoil-movement parts go back, take a live round from the belt, and eject the dead cartridge. At the same time they wind a fusee spring which at the proper instant rams all the moving parts forward again and fires the new live round.

The new Vickers K-gun weighs but 22 pounds complete with wind-vane sights, flash deflector, and empty cartridge bag. Those who have actually fired it—and who have been allowed to say anything about it—are loud



Above: Here's the American Armament Corporation's movable type 37 mm. (1.4 inch) air cannon in full elevation. A clip of its highly-destructive shells may be seen in the lower right hand corner. Left: Comparative cross-sections of our U.S. bombs. They range from 4,000-pounders to 17-pounders and from 14-footers to 2-footers. (U. S. Air Corps photo.)

in their praise of it as an air weapon.

During the German air raids on the Firth of Forth and Scapa Flow, all the British single-seaters sent up on defense were multi-gun planes—Spitfires, Gloster Gladiators, and Hurricanes. These jobs carry plenty of guns, which, we think, accounts for their success against the raiders, which had only ordinary Parabellum weapons and no power turrets at all.

Hurricanes and Spitfires each carry eight American Brownings, though there has been some talk that later models have been redesigned to replace four of these weapons with two Oerlikon 20-mm. air cannon. It is quite possible that by this time many new models have this arrangement of armament.

The British have been somewhat backward in adopting this type of heavy armament, whereas the French have gone full out for it. The results of the war in the air seem to indicate that the French choice has really been the right one. We mean that experts of the Tri-Color have not stressed gay colors, high speed, or super-streamlining. They have simply stuck on as many guns as the planes will efficiently take into the air.

THERE have been some interesting changes in German armament over the years, particularly since the World War. Germany, according to Allied opinion, was never any too progressive in armament during the last war. She never progressed much beyond the old Fokker gun gear and a crude arrangement of multiple mountings of Spandau weapons. I myself will say that the Heinies' old movable Parabellum was a joke from one end of the front to the other.

It might be said that there is something queer about German personality where machine guns are concerned. Sure, they react beautifully to "Big Berthas" and the like, where their mathematics and drill ground training comes in handy—but they don't stack up quite as well as the Frenchman, Britisher, or the American when it comes to making and handling smaller arms. In the First World War they had faster and possibly more maneuverable planes for the greater part of the time. But somehow they never quite built a really impressive machine-gun mounting.

The same thing goes today. There is no real power turret in the Nazi Air Force. Hitler's sky-gun men sim-



One of the finest brands of aircraft m.g.'s is the Danish Madsen, frequently employed by the French. The 23 mm. (.9 inch) Madsen shown above fires about 400 rounds per minute. Shells for the gun will be seen in the feed box. Dansk Industri Syndikat Compagnie Madsen is the maker of this weapon.

ply do not seem to know what's best to do with their machine guns. The Germans design fine and fast planes, but when it comes to arming them they fall off badly.

No Nazi plane compares with our own Flying Fortress, for example. Their fighters are fitted with a very questionable form of the old Spandau. Gunners on their other craft, I grant, are often given the more modern Parabellum you have probably seen in the war pictures of today. But, even so, the Germans do not seem to be offering greater firing power or heavier caliber ammunition.

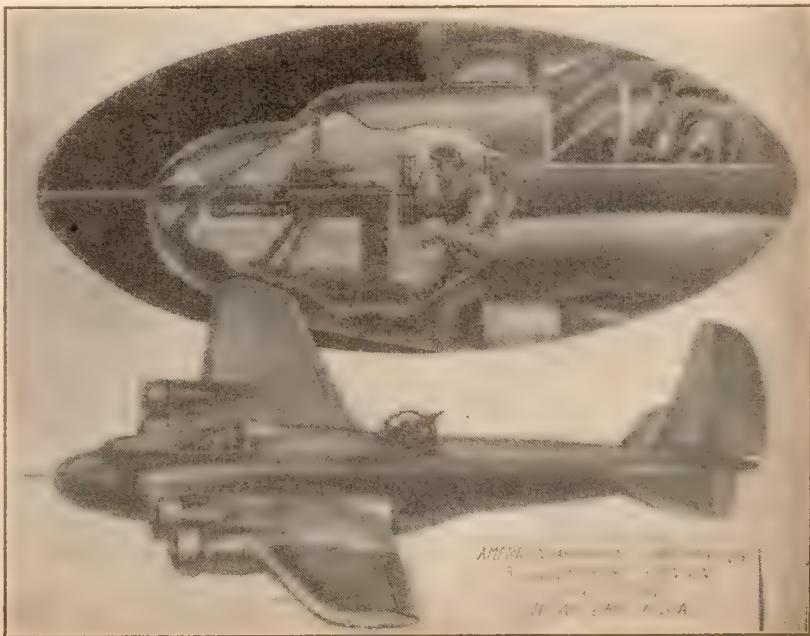
A particular instance will be found in the story of the first raids on Scapa Flow, where the Nazis lost several Dornier Do.18 flying boats. In the first place, the Do.18 is not a bomber by original design—it is simply a long-range ocean mail carrier intended for South American routes. It was hurriedly converted, given a few Parabellum guns on makeshift mountings, and sent on a mad raid to the Orkneys 500 miles from home.

There, these Dorniers met a squadron of British Auxiliary Air Force

planes, actually the City of Edinburgh No. 603 Squadron, which is composed of two-seat day-bombers, not single-place fighters. The pilots and observers are not regulars, but "Saturday-afternoon" flying men of the auxiliary force. But here, again, we find that sound British guns and gunnery overcame the vaunted German air power.

BOMBS now being used by the fighting forces of the air are very interesting. The new incendiary bomb devised by the British is a comparatively small item weighing but two pounds, fourteen inches long, and composed of a hollow tube of solid magnesium. Inside this is packed thermite. The tube is then fitted with a light detonator in the nose and a small set of wind vanes and a stiffener ring. Hundreds of these can be carried aboard a light, high-speed bomber, and they can be dropped to cover a wide area. One of these darts will pierce a roof, go through into the interior, and explode. No ordinary methods of fire-fighting will douse

(Continued on page 65)



Right: How the American Armament Corporation's 37 mm. fixed-type air cannon is mounted is shown here in the oval illustration. Longer and slightly heavier than the movable model depicted on the opposite page, this piece is fed five-shell clips by the gunner but is fired by the pilot. Then in the sketch of the full plane we see the stubbier movable cannon fitted in a turret midway on the fuselage.

Impropa Ganda

OR HOW A PINKHAM PAMPHLET MADE HISTORY

AS EARLY AS 1917, a flock of Heinies were tumbling to the fact they were holding the bag. They were getting fed up with ducking shells, bullets, bombs, etcetera, while Kaiser Bill played Napoleon in the rumpus room of the palace back in Potsdam. Then in 1918 they became convinced that the Hohenzollerns had laid an egg and were about to get the hook. That's why they began taking ganders at a best seller written by a man named Marx who pointed out that the world was everybody's oyster and that all they needed was an opener. Middle class Teutons saw red and began to leer at the aristocrat Junkers.

In Russia, meanwhile, a Steppe son by name of Nikolai Lenin sat on the Bullshevik bandwagon, smiled in his alfalfa, and wondered about the changes he would make in the Kremlin. Lenin was an old grad of the Marxian school, the one most likely to succeed. And you all know by this time that he didn't do so bad.

Let us get on with our story. It will show you why three certain Nazi hot shots of today have to stick together in sickness and in health until death do them part, and all that. Historians, you know, are only human. They cannot be expected to bat 100 percent. Anyway, if they had written anything regarding the exploits of Lieutenant Phineas Pinkham of The Ninth American Pursuit Squadron, nobody would have believed it any more than they now believe Adolph's favorite feathered friend is a dove.

It happened during the closing months of the Big To-Do, and the locale happened to be close to where the Kraut Limes Line is today. It happened because the United States Intelligence Corps had ferreted out a significant fact. And no one was any more astonished than the afore-mentioned Lieutenant Pinkham.

Phineas, as you know, had never been one to over-

By Joe Archibald

Author of "Ye Ould Emerald Oil,"
"Nippon Tuck," etc.

With Illustrations by the Author

estimate the cranial capacity of the A.E.F. G-men. "It must have been an accident," the Boonetown pilot said when the news reached the squadron headquarters near Bar-le-Duc. "Well, I suppose if a bum stands a hundred feet away from a hole in a fence no bigger than a Heinie's monocle an' throws mothballs at it, he is bound to git one through sometime. Huh?"

Major Rufus Garrity growled at the Iowa millstone that had been hanging from his neck for months, telling him to sew up his trap-hatch before he lost half of his teeth. "This isn't funny, what I've got to say," the Old Man said. "Let me hear you laugh when I get finished. I dare you!"

Garrity never used soft soap. He believed in being as blunt as the face of a mallet. He generally made things sound as bad as he could so that when his buzzards tackled a tough assignment, it seemed easier than it should have been. He told the pilots that the gas supply across the lines was getting as low as the spirits of a jilted bride. The Kaiser had managed to wheedle a couple of shipments of the Mercedes exhilarator out of the Russians to tide him over until his wise-noodle savants could dope up a substitute fuel.

Half of the Russian engine pep liquid was cached near Saarbruecken, for that was where his pet *Staffels* were doing business. And now the Allied G.H.Q. in Chaumont wanted this petrol burned up—and not in Fokkers, Pfalzes, and sundry. Why wouldn't they?

"That's the job we've got on our hands," Garrity said. "That place is ringed with a dozen anti-aircraft batteries and is flanked by the two toughest Boche flying outfits in Germany. One of the *Staffels* is commanded by a certain *Hauptmann* Hermann Goering. He's been around a long time. Used to fly with Richthofen. He's got the pick of the Kraut Aerial Circus and they can do everything with a crate but make it walk a tight rope or swing from a trapeze.

"D.H. Fours tried to get that petrol cupboard last night just after sunset," Garrity went on. "Three went out but only one got back, and that one looked like a duck after it had stopped four barrels of buckshot. Anybody laughing?"

"Haw-w-w-w-w-w-w!" Phineas obliged. "But I'm only foolin'. I am covered with goose bumps as big as bon-bons. Go on—"

The C.O. counted ten—fifty times. Then he threw his soup plate anyway. Phineas ducked and it went through an open window. A few moments later, Sergeant Casey came in with a fragment of it in his hand,



Phineas stared at the crude banner. Then Goering caught its meaning. "Himmel!" he bellowed. "Der Bullshevik!"



End over end spun the Fokker—until it WHAMMED into the linoleum and hurtled Hauptmann Hermann onto his head.

and there was a big bump just over his right eye. "I—er—was walkin' along, Sir, and mindin' my own business! I am sick of gettin' assaulted by the officers. I will prefer charges, an'—"

GARRITY chased the Flight Sergeant out and picked up where he had left off. This time it was a coffee mug. The Boonetown pilot knew there was such a thing as a law of averages which said he could not win all the time. So he got under the table and stayed there.

"Tomorrow, the whole squadron goes up. Belts will have plenty of tracers in them. Strafe that dump, I tell you. That spot there on the map is where it is, Captain Howell. A surprise raid on the place may—"

The Flight Leader gulped. He felt something near his feet and kicked at it. Phineas let out a yell and shifted his torso. Bump Gillis kicked out, too, and Phineas howled again and squirmed toward the end of the table. Six boots hit him.

Then Phineas rose up, taking the whole table with him. Dishes, some of them filled with left-overs, slid into Garrity's lap.

A riot followed. And when two brass hats entered the Frog farmhouse, the Old Man had Phineas down and was trying to bend the tip of the Pinkham proboscis back until it touched between Phineas' washed-out blue orbs. Howell and Bump Gillis were fighting because Bump claimed that Howell de-

liberately shunted a sliding bottle of ketchup into his lap. Somebody also hit Glad Tidings Goomer, the mess attendant, by mistake, and Glad Tidings staggered sloppily against one of the brass hats and put his arms around him.

The Old Man got to his feet yelling at the top of his voice "Attention!"

Pilots lined up and faced the wrath of the brass hats. Colonel Cuthbert Cuppy was boiling. "Disgraceful conduct, Major! Fighting yourself, too, what? No excuse for that, confound it. No harmony here—no discipline. The morale of such an outfit must be pretty low—demoralized. No fight left in them—"

At that crack, the Old Man had to let go: "Oh, no? You try an' lick any one of these guys. I just been tryin' now. If they can't fight, then King Arthur never saw a Knight, and—"

"I'll brook no insolence from you, Garrity!" broke in Colonel Cuppy. "I shall report this brawl when I return to Chaumont. And this was the outfit the Wing selected to break through and get that fuel dump. Hmph! I shall see that a more efficient squadron handles such a serious mission. And I will do my best to break this one up. Good evening, Major!"

When some semblance of order was restored, Howell held out his hand to Phineas. "Shake—as you sure got us out of a mess! Ha! Ha!"

Six other Spad pushers ganged around Phineas and tried to show

Talk about discipline! In von Bock's staffel it wasn't quite right—and in the Ninth Pursuit there wasn't any left. Which was tough, considering that a flood of Russian gas, both in liquid and hot air form, had the Democrat and Kraut contestants groggy. But what of Phineas? Well, he'd lost his booklet from the North American Zither Institute. And it took a trio of squareheads to find it—some guys named Adolph, Hermann, and Joe!

him how grateful they were. The miracle man from Iowa sniffed and pushed them away from him. "Why—er—you bums *mean* it! You was scared t'go over and shellack that gas dump, huh? Why, you sissies! I will get a transfer—It won't never be said a Pinkham—don't even talk to me! The brass hat was right. You are all a bunch of—"

The Old Man had a time of it quelling another uprising. He finally stumbled off into the Operations Office, his right eye now blooming with a mouse. Phineas went to his Nisson and barricaded the door with his trunk of skullduggery and legerdemain items. Bump Gillis demanded entrance, whereupon Phineas issued his ultimatum: "Git out! No lion lives with a mouse. I will throw out your pajamas an' tooth brush."

NIGHT FELL over Bar-le-Duc. Phineas was propped up on his cot thinking of two Krauts who were beginning to hog the headlines—*Hauptmann* Goering and *Leutnant* von Bock. He wondered if there really was unrest in Germany. Anybody would think so, he mused. Even the Kaiser's best friends wouldn't tell him, but Phineas was sure the Heinies were getting sick of bread made out of sawdust that they had to wash down with ragweed soup.

Phineas now took something from under his pillow and blew his breath on it. It was a miniature harp. Phineas shoved it between his buck teeth and fanned the little steel gadget that protruded from a corner of his mouth. But somehow he couldn't make a tune come out of the instrument. He reached under his pillow again to get a little pamphlet that had the instructions in it.

The cover of the pamphlet had printing in big black letters. They said: "North American Zither Institute. Little Forks, N. D." Smaller type told prospective customers that anybody could play a piano, a violin, or a saxophone. "Be different and become the most popular person at a party. Enroll with us! With the first installment we send you ABSOLUTELY FREE a beautiful gilded Jew's Harp. Do not delay—"

"H-Huh," Phineas grunted. "I will never git to be a musician. I will not keep up the installments for the zither, as it is a waste of *argent*." Phineas then lay down on his cot, little concerned about his being the life of the party. "No use fooling with—fooling—fueling—huh—no fueling meant that the Heinies'll be yelling 'Uncle!' long before Yuletide. It would seem pretty nice to be sailing home to Boonetown with Babette as Mrs. Pinkham. No fuelin'—huh—ya-a-awp—b-z-z-z-z-z!"

EARLY NEXT MORNING, Captain Howell took five ships of the squadron that was soon to be in the doghouse, up to fight the Heinies. Howell, burning up with the Pinkham jibes of the night before, was loaded for bear. He would not have stopped at gorillas. Back of the Meuse, more than a dozen Vons were looking for cold cuts. Phineas got ready to turn tail at the flight leader's signal and hop back to Bar-le-Duc. But to his surprise Howell signalled for the attack!

"H-Huh? Why—er—oh-h-h-h-h! Now I know he can't take a joke," Phineas gulped. "Why can't I keep my mouth shut? We're away out-numbered!"

A Fokker D-7 flashed past the Pinkham Spad. And things then happened so fast that Lieut. Pinkham could not get a chance to pick up his marbles. He felt like a fly that had fallen into a bowl of eggs being whipped up by an electric beater.

When he finally got his bearings, he saw a lot of British Camels mixing it with the Huns. Howell was still up, and he was fighting three Fokkers. Bump Gillis was needling the dorsal fin of another Kraut just below. After awhile, the Boche took second money and high-tailed it for a *schnapps* bistro.

After landing back at the Ninth, Howell stood next to his Spad and waited for Phineas to come in. He had a long wait. Four miles outside of Souilly, the Boonetown flyer had run a desperate Kraut into the real estate and had landed to get his prisoner on the hoof.

Leutnant Bernhardt Kohl walked forward from his gimpy D-7 and waved a flipper at Phineas. "*Wee gehts, mein freund!*"

"Too bad, Fritzzy. Somebody has to lose. Haw-w-w-w!"

"Bah! Who cares yet? *Der* Kaiser *und* all—bah-h-h-h-h!" vociferated Bernhardt. "*Hoch Lenin!*"

"Wha-a-a-a-at? Sa-a-a-ay, look out! Don't y' see that tree?" Phineas yelped. "You are walkin' right into—"

BLOP! *Leutnant* Kohl backpedalled and sat down on his empennage. Phineas lifted him up, said, "Didn't y-you see that tree, huh? Why—er—" He got a look at the Kraut's glimmers. They looked funny to him. "Er—what is it? Myopia or astigmatism, huh?"

"I do not see so *gute*, *Leutnant*, *nein*. But just *der* same, I get into *der* flying corps. Why? Because *der verdammte* proud Junkers are giving *oudt*. Now *der* Imperial Flying Corps is *gute* enough for *der* common bummers, *ja-a-a!* Vait—*der tag!* Comes *idt der*

revolution! *Der* blood vill run like bortsch! Down mit capitalists!"

"Uh—er—awright. But don't look at *me* like that," Phineas protested. "I only got eleven dollars in the bank back in Bonnetown. Haw-w-w-w-w! Lenin, huh? Sa-a-ay, are you a bullsheviki, Fritzzy?"

"I study by Karl Marx. I am sick of *der* Junkers. So *ist der Hauptman* von Bock! Always he gets *der* schmutzig end yet. *Und—*"

"The dirty end, huh? Well I'm a—it is not all mullar-key then about Lenin," Phineas yelped, and the seeds of an utterly cock-eyed plan began to germinate in his mental assembly. "Junkers gettin' in the doghouse, huh! I—er—"

"*Der* glasses yet, *mein freund*. I lose dem somewhere in *der* wreck vunce," *Leutnant* Kohl went on. "I grope step by step *mitout* dem. Help me find dem, *ja?*"

Sure—haw-w-w-w-w! Special lenses in the goggles, huh? Clever, the squareheads!" Phineas led Fritzzy back to what was left of a Fokker D-7, and there the Heinie got down on all fours and went around in a tight circle.

(Continued on page 74)



"Idt ist not zo bad!" chortled Adolph. "Und ja wohl! Look how nice der hair on der head flops down over der eye!"

Can Nazis

Break the Blockade?

DRAMATIC RIDDLE BEHIND OUR COVER PAINTING

GERMANY can win this war—if she can beat the British blockade. But to do this she must first find the answer to that long-mooted question: "Can air power lick sea power?"

Our cover this month graphically depicts a Nazi plane of the Henschel 123 or Blohm & Voss Ha. 137 type about to "lay into" a British Navy capital ship with a 1,000-pound torpedo. The B.M.W.-powered Henschel 123 is capable of toting several kinds of projectiles between its spatted undercarriage. Most of the raids on British and French naval vessels have been carried out with this brand of machine.

As for the B. & V. job, that's a new one—a single-place dive-bomber equipped with a new type of inverted Junkers engine. Though not particularly fast, it's sturdy and highly maneuverable. But to get on with the story—

At this writing, no one actually knows whether airplanes can sink battle-ships in efficient, war-condition fashion. Such cases as that of General Franco's ill-fated *España* don't carry enough factual proof. True, the British have air-raided Wilhelms-haven and claim to have put a Nazi pocket battleship out of the running. More damage was claimed at Kiel. In other instances, airplanes have sunk submarines. But sinking battleships is something else again.

The German pocket battleship, it must be pointed out, is in no sense a capital vessel as Navy understands it. It's simply a welded ship designed for high speed and plenty of guns. Actually, then, it's a thin-skinned armored raider—hardly a boat you'd find attacking a heavy cruiser or battleship of the line.

The Germans claim to have "sunk or seriously damaged" the British aircraft carrier *Ark Royal* with bombs dropped from a plane. And for a few days we all thought they might have accomplished this feat. But it was later disclosed that the *Ark Royal* was safe and sound at her station. The Nazis have since stated they damaged British vessels at

Scapa Flow and the Firth of Forth with air bombs.

The big puzzle, of course, is whether a warplane can approach at a low altitude and score a direct hit by torpedo in the face of the terrible anti-aircraft fire the enemy will paste at him. Or whether he can successfully hit a deck with a really-destructive projectile from a dive bomber. Yes, they do these things in ordinary practice. But so far, it has not been done under active service conditions.

We believe it is possible for a high-flying bomber to drop a large "egg" on the deck of a ship and sink her—but is it probable? We mean, to score such hits from any high altitude on such a small target.

But if Germany is to beat the Allies, she has to break the blockade; for it must now be obvious to all that the Maginot-Siegfried contest bids

rule the seas—on the surface, at least—and it is obvious that the submarine threat has been at least partly halted. Many submarines have been sunk and Britain has more than made up for her merchant marine losses by captures of German ships and goods intended for Nazi ports. Anyway, that's what officials of the British Government say.

EVEN AMERICAN officials, from whom we don't expect propaganda, have stated that Hitler will lose unless he breaks the British blockade. Former President Hoover has said that the Allies can and will control the seven seas despite submarines and airplanes, and that they can sit there until their enemies are exhausted. Neither synthetic production nor Russia and Central Europe can in wartime meet Germany's de-

mands for rubber, oils, iron ore, and other essentials. The Germans realize their extreme danger from a long war. They may try a quick overwhelming attack, and it may mean bad days for the Allies. But there is little reason to believe it can finally succeed. And then the slow strangulation of sea power will have its effect.

All these arguments come from a man who of all Americans knows what

shortage of food means. Hoover was the director of food distribution in Europe after the last war. He saw plenty and heard plenty, and his opinions cannot be cast aside lightly.

Only if German bombs can pierce British battleship deck armor seven inches thick—only if these bombs can hammer on through to explode in vital parts—can an airplane sink a capital vessel. Granted, warplanes can play a big part in the destruction of a navy, but as far as we know, they do not as yet carry the pounding force that can write "Finis" to the dreadnought type of warship.

The surrendered *Ostfriesland* on which U.S. Navy bombers experimented some years ago, was sunk after a heavy bomb exploded beneath her quarter. This bomb was dropped

(Continued on page 79)

Germany's great sky forces are now clashing with Britain's formidable sea forces in a striking struggle for mastery of the oceans. And in the outcome of this titanic contest, say the experts, lie all Hitler's war hopes. On this conflict he will either stand—or fall!



fair to be a stalemate. In fact, the Allies are well on their way to tying up the Western Front tighter than a hangman's noose. Germany may attempt to avoid the Maginot Line by invading via Holland, Belgium, or Switzerland; but this is still a matter of conjecture. To the most unmilitary mind, it must appear now that this will be a war of endurance. It is obvious that the Allies intend to starve out Germany, and the only way Germany can overcome this possibility is to break the Allied navies so that Nazi merchantmen can again sail the seas and bring in supplies and foodstuffs.

The Germans seem to have a very menacing supply of planes, bombs, torpedoes, and explosives. Yet whether all this comprises sufficient punch is another question. The British still

Below: What with the present re-armament program of our Air Corps, they've clamped down on publicity at the Vultee plant—hence this not-so-revealing shot of the new Army interceptor-pursuit. Supposed to be one of the fastest things in the air, this job has been in the experimental stage

for the last six months. Power is supplied by that new 1,200-h.p. P. & W. Double Wasp, streamlined in the XP-42 fashion. Here we see Chief Engineer R. W. Palmer (left) giving prior-to-flight advice to Vance Breeze, Vultee test pilot. Breeze has won world fame as a tryer-outer of new ships.



Through the Aero Lens

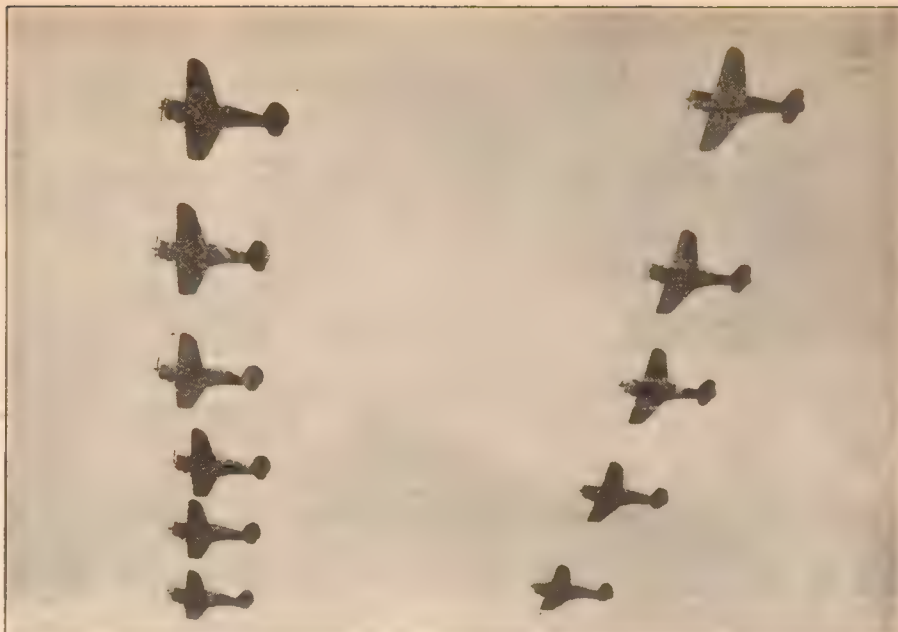


Above: The lad who nervily snapped this special Grumman XSBF-1 tells us he came mighty near having his camera smashed—but was saved that ignominy by Roy Grumman himself, who reminded his guard that the plane was no longer secret. According to rumor, the Navy rejected this 650-h.p. Twin Wasp Jr. job because she was too slow. Left: Nasal architecture! Here's what they've done to the schnozzle of the Douglas B-18A, and what's not shot down will probably be scared to death! In the lower portion of the nose we have a gunner's turret with a slotted gash, which takes an m.g. for firing forward and downward. The over-hanging superstructure, above, is the compartment carrying the bomber's instruments for releasing high explosives. (Kulick photo.)

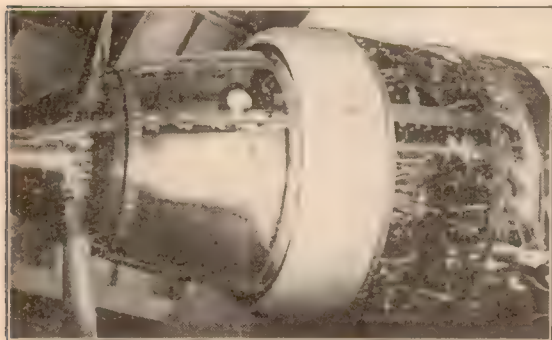


Guess again, boys—for you're wrong in thinking this new Curtiss XP-42 is powered by an Allison. No, sir! Instead, it's got a new P. & W. Double Wasp in its nose! Many of the top-notch experts—Al Williams, for instance—have been blasting the air-cooled engines for many years, saying that they were n.g. because too much efficiency was lost due to frontal resistance. But now that they're cowering air-cooled plants in this sleek style, perhaps Al and the rest of the boys'll have to think up a new argument.

In the Air Corps you have to fly as straight as the infantry marches. Anyway, this is just one of the swell precision maneuvers that spectators saw at the National Air Races in Cleveland. The planes are Curtiss P-36C's, and they did more tricks in the air than any veteran squad of Regulars could do on the ground in ten years. They did 'em all at more than 250 m.p.h., too! Incidentally, we give full dope on the P-36C in this month's Modern Planes Album. (Kulick photo.)



Below: Mounted on a mock wing at New York's Fair, this P. & W. special Double Wasp shows the newest method of streamlining radial engines. As you can see, the motor has been placed behind a bullet-like nose and the propeller shaft has been lengthened out in front of the plant. In this way, it's possible to give the old radials that smooth-flow effect that heretofore has been found only in in-lines. Tricky, huh? (Kulick photo.)



Right: Out in Riverside, Calif., there's the undenominational shrine of St. Francis perpetuating the memory of well-known aviators. Being a bird lover, St. F. is considered the patron saint of all aero men. And here we see Chief of the Air Corps Major General H. H. Arnold inspecting the copper wings which carry the autographs of many world-famous pilots. Below: Late in October, Commander Humberto Gal'ino, chief of Peru's air corps, and his brother, Captain Victor Gal'ino, took off from Floyd Bennett Field in this Barkley-Grow and completed a 3,400-mile non-stop hop to Ecuador.



Below: Long out of the big-ship picture, Curtiss-Wright now comes back with this 36-passenger job. Two 1,600-h.p. Double-Row Wright Cyclones will power this sub-stratosphere flyer. Originally called the CW-20, it was displayed in mock-up form at New York's Fair. A great looking transport!



A Day With a Dodo

AT THE "WEST POINT OF THE AIR"

By Herbert E. Smith

Staff Sergeant, U.S.A.
With U. S. Army Photographs

JUST WHAT is the "Randolph routine" of one of those fortunate chaps who's made the grade and got himself titled as a Flying Cadet? Well, fellows, as those radio announcers say, "We take you now to Randolph Field, Texas!"

The hour is early—when most of you lads are still in bed. We find the Regular Army Sergeant reading loudly from an official paper—

"Attention to orders! Paragraph 1, special orders 6, Squadron A, Flight 2: All Dodoes will wear their goggles at breakfast this morning, inasmuch as grapefruit is to be served . . ."

A barely audible snicker goes up from the Flying Cadets lined in ranks outside their barracks in Reveille Formation. The Sergeant looks up quickly from his order papers.

"Steady!" he barks warningly. "You men are at strict 'Attention'!" Then he adds with a faint smile: "And for the benefit of any of you birds who don't yet know, a 'Dodo' in

Here's a different article about Randolph Field—one that transports you right to the Army's great sky school! There you'll meet that average flying cadet, George Groundling. And with him you'll go through the typical daily routine of the field.

flyers' language, is anyone who has not yet flown, either as a passenger, student, or pilot. Any questions?"

There are none. So the Sergeant reads on—

"Paragraph 2: All Dodoes will also, this date, bank all turns they may make while double-timing about the barracks area."

He looks up again. "There may," he cracks, "still be a few ground-lubbers in this squadron who don't yet savvy what this 'banking' means. So I'll explain it: When any of you Dodoes are running around this area—that is, around barracks here—and have to make a quick turn at a corner, you'll hold your arms straight

out from your sides and lean over—and we *mean* lean over!—in the tack of the direction you're taking. That clear?"

No voice is heard. Apparently they've "got it."

"All right, then!" the Sergeant rasps. "Fall out! Make up your bunks! Police your squad room area! And make sure you're in the mess hall before the last bell sounds! And again I remind you 'Dodoes' to wear your goggles at breakfast and to bank all your turns when you're on the double in this area today. That's all! Squadron, *dismissed!*"

The approximately two hundred plebe Flying Cadets who have recently arrived at the Army's Randolph Field Primary Flying School, now break for their barrack building just behind them, with the fledglings who have not yet made even a passenger flight obediently banking their turns as they round the corners on the double.

Another typical week-day in the life of Uncle Sam's apprentice airmen at "The West Point of the Air" has begun!

As usual, it began at 5:45 that morning when the Cadets had been routed out of their comfortable Army cots by the strident bugle notes of "First Call," succeeded a short quarter-hour later by the bugler's "Reveille" which, daily except Sunday, is to find them in their neat slate-blue uniforms lined up in "company front" outside their barracks for roll call and for reading of the Orders of the Day.

Usually, these orders simply cover the routine to be followed by the squadron members that day—ground force details along the flying line, ship overhaul in the hangars, an hour's trick in the radio control tower, parachute rigging, and such other aero assignments as are to be given the Cadets that forenoon and afternoon. Occasionally, how-

Ready to tackle an aviation problem in mid-air, these advanced Cadets are listening attentively to a last minute bit of advice. Sharp-eyed, red-blooded American lads! We don't blame you for envying them.



"Take her off and climb to 4,000. We'll try some chandelles today." That's what the instructor, in the rear pit, is probably telling his student through the interphone. The ship is a 400-h.p. North-American BT-9 trainer.

ever, a "stunt order," such as we found the sergeant reading, crops up on the program.

For, like their grey-clad comrades at West Point Military Academy, in New York, the Flying Cadets at Randolph Field frequently find their daily duties broken by a little of that nonsense which is proverbially relished by the best—and most industrious—of men.

A Flying Cadet's day is mighty busy, as a rule. But they love it. They wouldn't be here at Randolph Field, striving for their prized silver "wings" denoting pilot rating, if they didn't!

NOW THEN, let's follow Cadet George Groundling as he goes through his day, after he has had his goggle-eyed breakfast of grapefruit, cereal, hot cakes, sausages, fresh fruit, and Jamoke. Yes, they feed 'em well—and as for the "Jamoke," that means coffee.

Breakfast is from 6:45 to about 7:40, leaving our Cadet enough time for a quick smoke, shave, and wash-up before he falls in, with his squadron mates, for the formation march over to the hangars at 8 o'clock.

He has now doffed his neat dress uniform of slate-blue and donned

olive-drab denims—for he'll be working about planes in grease, gas, and oil this morning.

Cadet George Groundling goes first into the machine shop behind the row of concrete hangars. Before *he* can hope to fly a ship he must learn how *it* flies. To this end, a course in aerodynamics, or "Theory of Flight," is given him by qualified Air Corps men. Here, the separate parts of the airplane—wings, propeller, motor—are studied with regard to their adaptability on various types of ships. And near the end of this course, Cadet Groundling will be expected to assemble these parts, alone and unaided, into the complete airplane. At the end of this primary course the auto-

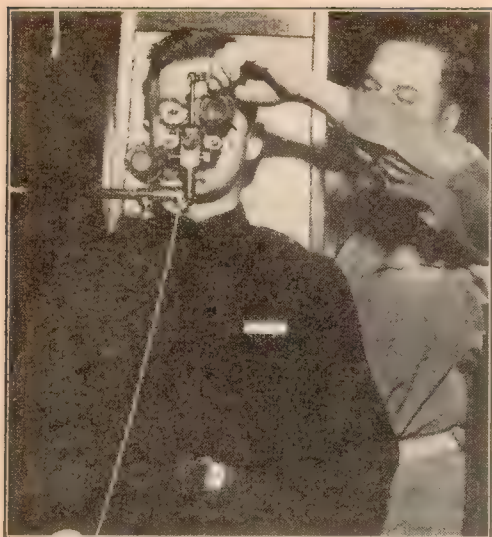
giro and other modern developments are discussed briefly in several lectures, bringing his background of aviation up to date.

From the machine shop, Cadet Groundling and his denim-clad buddies go to the hangar line, where he gains practical knowledge in rigging and structures. Now he studies the ribs, the stabilizing devices, and other structural details of aircraft.

Cadet George Groundling's last period on this typical day may have to do with practical work in the power plant department. Here he will learn about the development and production of the internal combustion engine. Here he will learn, too, that one

This striking shot of the Air Corps 2,300-acre Primary Flying School was snapped from 6,000 feet. Randolph is a compact "flying city" bordered by four enormous landing fields.





With flyers, eye tests are of special importance. Following the initial physical exam, periodic check-ups are made every six months, not only on the Cadets, but also on every officer and pilot in the Air Corps. A School of Aviation Medicine is located at the field.

racks, fall out of formation, and wash up for dinner—or lunch, as you civvies usually call it.

Promptly at one o'clock, Cadet George Groundling, still in denims, will again be marched in squadron formation to the flying line. Each week-day afternoon, except Wednesday, he spends three solid hours getting further detailed instruction in aviation sub-

jects. He learns sky mapping and the making of mosaics from aerial photographs. He will be taught the principles of night flying and astronomy, also the fundamentals of blind flying. The former includes dope on avigation and how to "shoot" the stars. He will likewise receive thorough courses in radio, calculation for wind instruments, and meteorology.

Comes a time when Groundling, having successfully passed the regular weekly exams (often held at unexpected moments as surprise, "sudden death" tests) is listed as a "theoretical" airplane mechanic. But he is still far from being a real military airman. Also, before achieving that goal, Groundling must know how to use airplane armament—must absorb a lot of instruction in machine guns and bombs, in the handling and firing of both rifle and pistol.

All this Groundling is taught, some time during his four months' training at Randolph Field and his subsequent eight months' advanced course at Kelly Field, the Army Advanced Flying School.

BUT TO RETURN to Groundling's typical day: At 4 p.m. he is marched back in formation to his barracks, washes up, ducks under a cooling shower, changes to his dress slate-blues, and at 4:30 stands Retreat Ceremony. This impressive military rite over, it's time for supper—"dinner" to his Aunt Patricia back home.

But is his day over?

Not so! Every week-day evening, from after supper until 9 p.m., he must study. Definitely! If he has attained a consistently passing mark in his weekly exams and tests he may, twice weekly, take in the movies at the Randolph Theater, a modern, air-conditioned amusement center of the post. But even then he must be back in his squad room for the nightly 9 p.m. check-in every Flying Cadet must stand. "Taps" is blown at 9:30 and at that hour all lights are doused and every Flying Cadet must be abed.

Wednesday afternoons are devoted to sports, and every cadet must participate in some form of athletics. But the kind of fellows you find at Randolph don't think that's hard to take. They "go" for sports in a big way.

Sunday is a real "Day of Rest" for our friend Cadet George Groundling, however. To him, that day is doubly blessed—for he enjoys the luxury of an extra hour's sleep in the morning. "First Call" not being blown until 6:45 a.m. Later, he may go to chapel services on the post or in nearby San Antonio. He may then make this Sunday a busman's holiday by wangling a sky ride with some Army Air Corps pilot taking off for a short cross-country hop, or he may spend the day writing letters to the "One-and-Only" and the home folks back in Oshkosh, Keokuk, Missoula, Bangor, Tallahassee—or wherever it was he hailed from.

It's a stern, rigorous program Cadet Groundling has got himself in for. But there are recompenses, both

(Continued on page 79)

of the chief headaches of all designers, from the early times of the Wrights to the present day, has been the attainment of an engine sufficiently powerful to give the desired performance yet consistent with the light weight and reliability essential in an airplane.

So our young friend Groundling takes up the theory of cycles of operation, principles of carburetion and ignition, and fuel and lubrication requirements. Later, he will supplement this with an extensive "trouble-shooting" course on the different types of engines on the test blocks.

Along about 11 a.m. he will see other men in dirty denims leaving the hangars and the flying line and heading back to barracks. But those men are Regulars—soldiers and officers of the Army Air Corps, masters of their chosen trade. Not until "Recall" blows at 11:25 will Cadet Groundling and his squadron buddies be marched back to his Flight bar-

Advanced students spend more than 100 hours on these sleek BT-9's. Formation flying, instrument work, and day and night avigation comprise the staple training given on these jobs. Cadet Groundling eagerly looks forward to the day when he'll be eligible to climb into a BT-9.



WISECRACK-UPS

Taxi in on this runway and pick up a plane load of laughs! In this department, we present a collection of jokes, cartoons, and humorous verse. For all original jokes which we can use here, FLYING ACES will pay \$1. Contributions cannot be returned. Address all letters to WISECRACK-UPS.

ADVERTISEMENT

FOR SALE: Flylikabrick sport monoplane, 20-h.p. Conkwell engine, wings just re-shingled, drain pipe included, built-in crystal set, \$15.00. Better buy this plane. You'll never live to regret it. See John Hogwash, Hangar 8, Ruff Field.

CONFIRMED VICTORY

C.O.: You say you shot down von Schlottzmeier? Fine! But where is your plane?

Rookie Sky Fighter: Oh, yeah, I forgot to tell you. His plane crashed on our side of the lines, an' I had to lend him mine to get home in.

TRAGEDY

First Greaseball: How come the absent-minded professor got taken to the hospital?

Second Greaseball: Well, he spun his prop, you see. Then he forgot that he'd spun it—and went out front and spun it again.

CLUE

Irate Husband: I tell you there's a wheel missing from my Flying Flea!

Wife: Well, I heard Junior say he needed a washer for his gas model.

MURDER

Pilot (angry): What in heaven's name happened to my Flying Flea? It's lying on its back!

Mechanic (apologetic): Oh, Sir, I'm sorry! I didn't know you'd left it in the hangar. An'—well, the exterminator was just in there.

FIGURED IT ALL OUT

Garrity: You sank that brand new amphibian deliberately! I'll bust you for this!

Phineas: But that's where my old amphib sank—an' I just wanted to make it worthwhile to drain the lake for it.

NEW BOSS

A poor student, after crashing for the last time, quickly found himself supplied with horns and a pitchfork in the Lower Regions. Then hardly had he got settled when he began ordering everyone around.

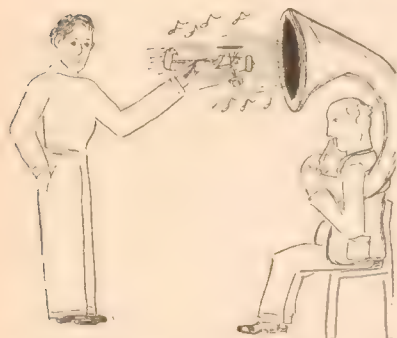
"Say!" spoke up Satan. "You talk as if you own this place!"

"You're darn tootin'!" the stude cracked back. "My instructor certainly gave it to me while I was on earth."

BUTTER FINGERS

C.O. (very mad): Where's your compass, Lieutenant Snugger? Why isn't it in your ship?

Lieutenant Snugger (not quite bright): You told me to swing the compass, Sir. Well, while I was swinging it, I accidentally let go of it.



Son: Hold that note, Dad! I want to see if I've got the right co-efficient for this airfoil.



Flight Student Ichabod finally solos!

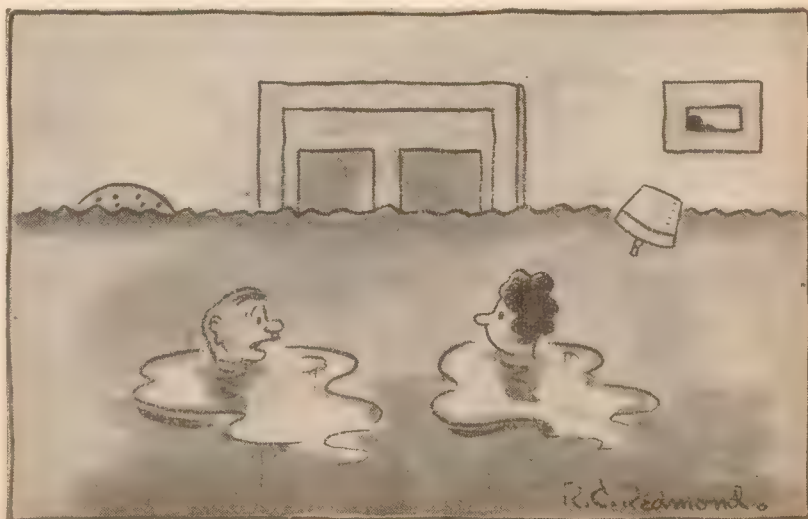
TOUGH LUCK

While flying an observation job, two screwball lieutenants suddenly sighted an important enemy gun position just off one side of their left wingtip. Having no maps of the sector, one shouted to the other:

"Let's make a mark on the wingtip so we can find this place again."

"It's no use," answered the second nut. "The commander's giving us a different plane tomorrow."

Dumb Dora thinks the N.A.C.A. must be that place they call the Home of Contented Cows.



"Don't you think Junior has enough water in the tub by now to float his seaplane?"

Contraband Cocardes

By Arch Whitehouse

Author of "Wings For the King," "Sky-Gun Scorn," etc.

Illustrated by Alden McWilliams

TENSELY the man in the scarlet mask sat in his cockpit studying the blue-black shape that slashed through the graying mist below. That knife-winged biplane had appeared suddenly like an indistinct picture thrown against a murky screen. And now the Griffon realized the hurtling intruder was heading in the same direction as the Black Bullet—which meant there was a grim possibility it had come from the same direction.

The Griffon had no intention of being spotted out here, many miles east of New York City. He had been out on one of his nocturnal adventures well beyond the twelve-mile limit, where ship-masters of questionable character, but unblemished loyalty to the Griffon, often lay at anchor. This time it was the rusty-whiskered Jan Boompjees whose papers said he had sailed out of Rotterdam. But Jan could, if necessary, provide other papers proving he had been copra trading in the Dutch East Indies, pearl diving off Samoa, or seeking coastwise cargoes out of Norfolk.

Why the man known as the Griffon had sought Jan's old tramp does not matter in this story. The contact had been but one in a series made by the Griffon to maintain a full armory, to collect spare parts, to keep up his collection of ancient weapons, and to pick up two precious volumes on ballistics. He had to know several such Jan Boompjees to carry out the role of the Griffon effectively.

But Jan Boompjees and his rusty tub were far astern now. What the Griffon was interested in at the moment was this sudden appearance of a plane heading in the same direction as he. Where had it come from so unexpectedly? Where was it going? What plane was it?

From the Bullet's rear cockpit came a husky voice tinged with something distilled from certain grains peculiar to the northern slopes of the Grampians. The warbling—a surprising ditty set to the tune of a film number—whanged against the Plexiglas—

*"Heigh-ho! Heigh-ho!
Herr Hitler made them go;
But soon he'll bump,
Smack on his rump,
Heigh-ho! Heigh-ho!"*

"What is this?" demanded the Griffon. "What's got into you?"

"A little O'Doul's, Boss. Need a snifter now and then, with this cold."

"What cold? I didn't know you had a cold."

"I ain't—but I might get one out here on a bad night like this."

"Well, you stop singing that Hitler stuff. Remember we're neutral. You'll get yourself deported—and then you might find yourself with the Irish Fusiliers, finding out what it's like over there."

The guy in the back seat took another swig

from his little pot-bellied bottle in an effort to drown out the thought of any such harrowing possibilities.

"That's right, Boss. We are neutral, ain't we? That means we can't even talk about the war, eh? I'll bet they's a lot of Irishmen in New York who look awful funny just now, trying not to talk about a fight."

"That's not funny, Barney," the Griffon said. "That's one thing we've got to look out for these days. We don't want to be led into a war. Remember that, Barney."

"Yeah, but I still don't like that fel—"

"Ah-ah!" broke in the Griffon. "You see, there you go again! It's things like that which starts wars. We've got to watch out for this pressure stuff."

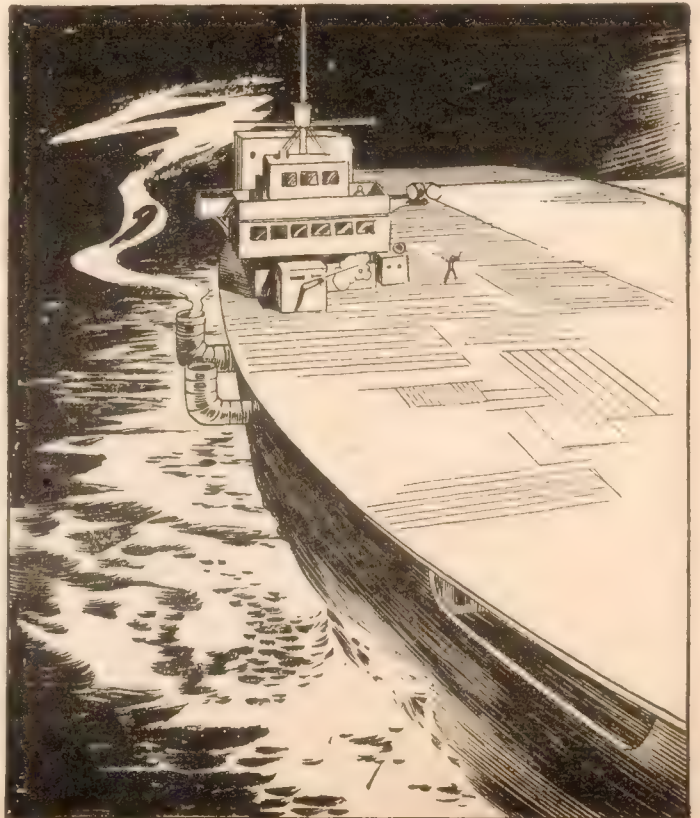
WHILE all this talk had been going on, neither had noticed that the strange bluish-gray something flying below them had changed its course. They didn't find that out until a clangorous burst of fire spanned through one of the outriggers extending back from their engine nacelles. The guy in the back seat quickly plopped the bottle from his mouth, replaced the cork in well under par, grasped the handles of his Browning, and peered about like a gargoyle.

The Griffon threw the Black Bullet over hard, and they came around so that Barney could get a full bead on the great plane below.

He let her have a full throated burst, then suddenly stopped. He leaned full over the gun breech as if uncertain what his eyes saw.

"Wait a minute, Boss! Somebody made a mistake!"

"Sure did. That's a British plane. She's got a torpedo between her wheels."



GRIPPING NEW KERRY KEEN SKY-SPY NOVELET

"Right! But she's still firing at us."

The Griffon had to work fast now. He swung the Black Bullet again and Barney rolled over and bashed his face against the Browning gun breech casing. The guns set forward in the nacelle-type cabin began to chug like a throaty engine. Belches of scarlet flame spat out and bored their way deep into the Blackburn Shark below.

The fight lasted several minutes, with heavy exchange of fire. But neither side seemed able to find a vulnerable spot.

The Griffon was not certain of his position now. It was evident that he was facing a British torpedo-carrier, and the attacking machine had all required British markings. But why had it fired on them?

"I'm getting out of here," he argued with himself. "Can't do any good around here. That boiler might be off one of the British carriers if they are in these waters doing convoy work."

He sensed too that he was in a tricky spot. The British plane was well outside U. S. territorial waters and had every right there. If he was caught molesting her, he might create a very sticky situation, considering the neutrality laws. He decided to play safe and clear off.

He trimmed the plane for speed and gave her the gun.

Through dark, trackless skies beyond the coastal twelve-mile limit hurtled two mysterious flyers. Bent on secret missions, each was oblivious of the other—until their paths crossed in a roar of hot lead! Neither of those pilots was a coward. Yet from that raging battle one finally fled. That man was the dread Griffon—who wouldn't have fled had he known of those British planes that weren't British or of that famed passenger boat that wasn't a liner!

The Blackburn fired a long screaming burst from its front gun, whereupon the Black Bullet hurried off into the darkness with a send-off of tracer slitting the sky behind him.

IN about an hour, the Black Bullet slid down for a landing outside Graylands. The Griffon lowered the pontoons, dabbed her down against the gentle rollers, watching the beam of Montauk Light swing around and plate the sea with a streak of silver. Then he ran her, with the motors well muffled now, up the packed

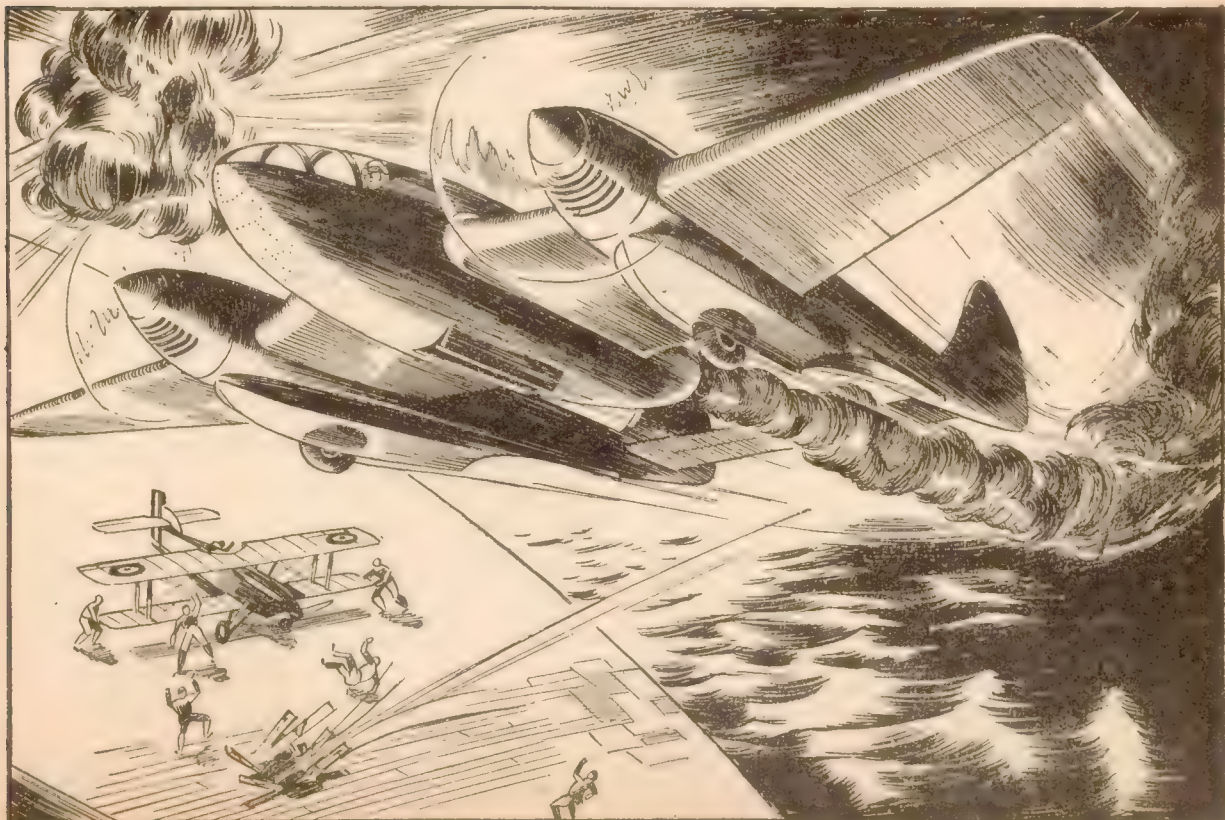
sand and past the boathouse on her wheel gear.

Barney, still holding his battered mug in his fist, crawled out and made his way up to the hidden switch that would start the motors lifting the great doors of the secret sunken hangar.

Keen watched the doors, camouflaged as a rock garden, swing up. Barney swung the Bullet's folding wings up, then Keen let her gently roll down the ramp. The doors were closed again and without a word they both went upstairs.

Barney stumbled up the stairs dabbing at his bruised mug with his gory handkerchief. The Griffon was now slipping out of his scarlet face mask and flying helmet, taking no notice of the plight of the Irishman. He

With a hissing retch, a long, slim projectile plummeted down from the smoke-streaming Black Bullet. And when it hit, a gaping hole appeared such as a giant might have battered with Thor's hammer.



was still pondering on that mysterious Blackburn Shark.

At the top of the stairs they both halted and instinctively pawed for their guns. They had heard talking—voices of some kind clacking away in the rooms of the first floor.

"What the devil?" breathed Barney, listening carefully.

"It must be the radio. Did you leave it on?"

"No, Boss. Of course, I was listening to the Green Ghost program, but it was all over when we left and I turned it off."

"I'll bet you did."

They carefully opened the door to the top of the stairs and listened again. They were certain it was the radio now. It was going in the den on the right. And now the loud speaker was bringing the tell-tale words of a special news flash—

"... and the torpedo fell on the polo field of Governors Island. Lights from Fort Hancock picked out the plane as it dived for the bay, and the searchlight crew are certain that it was a British torpedo-carrier of a fairly modern type. It zig-zagged back out past Staten Island again, in spite of a heavy fire from shore batteries, and escaped out to sea. The torpedo did not explode. Already U. S. Army officials are checking it to determine where it was built. There will be more news of this later as we get authoritative information from Government officials. Keep tuned to this station for further reports of this purportedly British air attack on Governors Island."

A brassy orchestra took up where the announcer left off, and both Kerry Keen and Barney O'Dare hurried into the corridor, darted into the den—and found their feet riffling through sheets of paper that were scattered all over the floor.

"What the deuce?" burst out Keen. "Snap on that light, Barney."

The Mick finally found the wall switch and flooded the room with a blinding glare. He stood there staring at the wall. But Keen was quickly taking in the whole room. Drawers were pulled out from his desk, drawers of his files were partly out, and wads of paper were scattered all about. The place had been ransacked.

"Look Boss! Look—blood!" the Mick said, pointing to a stain on the wall near the switch.

Keen strode across the room, stared at the mark on the wall: "That must be from your face. Why don't you be careful?"

"Not mine, Boss. I used this hand. See—no blood on this hand."

The Mick was right. Besides, this was now quite dry. It had been splattered there by some other person.

"Holy mackerel!" gasped Kerry Keen. "Someone's certainly cleaned the place out. What the deuce were they after?"

Then he turned and made a quick move. He picked up a cap on the floor. It, too, had blood on it. It was a stiff, peaked cap bearing a badge made up on black felt with gold embroidery. It had a gold albatross in the center and the lot was surmounted by a crown.

"That a British Air Force parade cap," said Barney. "I seen one in the pictures. What is this?"

Keen did not answer. He was studying the cap and

gingerly poking his fingers into the bloodstains on the band. He continued to peer about, then moved toward the lounge that backed up to one side of the wall. There lay a sky blue great-coat with British Royal Air Force buttons down the front and across the belt that drew in the back.

He picked that up and inspected it. He found a Burberry label on the inside pocket and the name: "H. G. Matin, No. 10 Squadron, R.A.F." marked on the identification lines in indelible pencil.

"What the devil has been going on here?" he demanded. "We get nailed by a British torpedo-carrier. Someone drops a torpedo on Governors Island which doesn't explode. And now a guy in the R.A.F. raids our place here and leaves half his clothes."

HE FUMBLED through the great-coat and got another surprise when he found a dainty lace-edged handkerchief in one pocket. This he held up for Barney to look at.

"Was that guy a sissy?" beamed the Mick.

"No! This is a lady's handkerchief, you mug, and it has the initials 'B.C.' in one corner. Doesn't that mean anything to you?"

"Why—uh—it means 'Before Christianity,' don't it? But, Boss—they didn't have no Air Force then!"

"No? Well, I once read in the Bible where a guy named Esau sold his heirship for a mess of pottage," gagged Keen, trying the other pocket.

"Wow, Boss!" the Mick replied with awe. "Did they really have them balloons in those days, too? You're up on everything, aren't you?"

"Look!" snapped Keen ignoring the Mick's ignorance. "Does this mean anything to you?"

He held up a diamond-studded platinum vanity case.

"Hey! That belongs to Miss—to Miss Colony. Our Pebbles!"

"Right! She must have been here with this guy, or out with him, at any rate. He was carrying her stuff. Go upstairs and knock at her door. See if she's there."

The Mick left the den and Keen sat down and tried to make some sense out of it all. He stared about the room at the scattered papers and wondered what the thief, or thieves, had been after. Where did Pebbles fit in this mess? And who was the fellow who wore the bloody Air Force cap and great-coat? None of it was logical. It made a lot of mess—but it didn't make sense.

In a minute, the Mick came back, his face a mask of puzzlement.

"She's bin here, Boss. All her clothes are upstairs on the bed."

"All her clothes? What do you mean?"

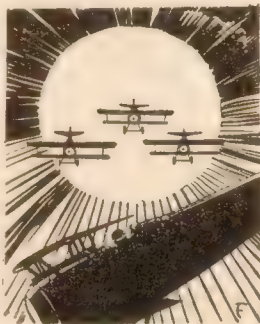
"There's her coat, a hat, a dress—some shoes and stockings, and—er—silk—er everything!"

That was too much for Keen. He dropped the coat, went up the stairs three at a time, and entered the room Miss Barbara Colony, better known to them as Pebbles, used when she stayed at Graylands. The Mick had left the light on above the dresser and a quick glance disclosed that what the Mick had said was substantially correct. Keen recognized the Strook camel-hair coat with the blue fox collar. He recognized the saucy hat and the dress. There was also the shoes, hose, and some very feminine underwear.

"What in the name of heaven did she wear when she went out?" was Keen's natural question: Miss Colony did not keep any extra clothing there. She usually brought an over-night bag. He went to a closet, but it was bare except for clothes hangers. The drawers of the dresser were empty.

On the face of things, Miss Colony had come there and—well, taken off her clothes. But what had she put

(Continued on page 66)



All Questions Answered

This section of FLYING ACES is at your service. So if you have an aero query, fire away and we'll answer it here. All questions will be considered in the order they are received. For a personal reply, send stamped, self-addressed envelope.

Paul E. Hurd, Broken Arrow, Oklahoma:—We could only print the available details on that Bellanca 28-90. We do not know how the pilot managed to fly it in that fashion, but evidently he did. They must have made some sort of temporary adjustment on the fin, or fins, to make up for running on one engine. We have not received the NACA result on the test you refer to. You could get it, I am sure, by applying to Washington yourself.

Billy Jacobs, New York City:—The chief difference between the Spad 7 and the Spad 13 was in the engines. The 7 had a 150 Hisso and the 13 a 200-h.p. Hisso. I do not have all the details you ask about those World War Aces. Fokker, Sopwith, Bristol, Albatros, and Pfalz made triplanes in the First World War. They are not made today because we have powerful enough engines to get upstairs fast—which was what the triplane was noted and designed for.

Thurlow Flanery, Litchfield, Ohio:—Sorry, but I can't see much resemblance between the Praga E-45 and the Curtiss P-5—beyond the fact that they are both biplanes. The tails are different, one has an inverted motor and is much shorter in wing-span. The Spad cruised at about 94 and had a top speed of about 117.

Billy Greer, Collinsville, Ill.:—I do not know where you can buy Vickers guns any more. A short time ago a firm in New York had a number of these war-time models for sale. They had been "fixed" so that they could not be actually fired, but were complete as souvenirs. The firm, however, was made to stop distributing them, since it seems that someone found out how to "fix" them the other way—so that they *would* fire. The Government spent considerable time rounding them all up again. That's all I can tell you about it.

Franklin Keller, Courtland, Calif.:—If your framework is built straight and properly stressed the doping should not warp the rudder and elevators. Perhaps your dope is too thick. Check it with a model-making pal or your model dealer. The men who are losing their lives trying to fly the ocean in light planes are making the attempts without official sanction, so the Government cannot be responsible for them. It would be impossible to check every flight that takes off to see whether the pilot was planning

a long distance flight. You are quite right about certain of those story plots of mine. That's the best medium in the world for plots—if you know how to select them and fit them together.

C. Riccardi, Los Angeles, Calif.:—There is no charge for the publishing of model airplane pictures in our magazine. We simply select a few of the best sent in each month, because we feel that other readers are interested in seeing the jobs other fellows turn out. If you have a shot that is clear and detailed, send it along, telling us what it is, something about its construction, etc. We'll be glad to use it.

Jerry Keefer, Wheeling, W. Va.:—If our editorial face could get redder than red, it would *now*—for you tell us that we got Elm Grove, Ohio, mixed up with the correct town of Elm Grove, West Virginia, in our

ty of one year in jail and a fine of \$3,000. With all this, then, I cannot advise you what to do or give you any information as to where to apply for service with Canada or the British Royal Air Force. I also sincerely hope that you other readers who have hankerings in this direction will take careful note of this. You see, I have no contacts with any foreign power or any means of getting anyone into any foreign service.

Cecil Roberts, Columbia, S. D.:—Sorry, fellow, but we have no swap column in FLYING ACES. But we are ready to answer aviation questions that might be puzzling you. Just address this column.

Ralph Naessig, 464 N. Penna. Ave., Wilkes Barre, Penna.:—You'd like to get a copy of the September 1938 F.A.? Well, maybe some reader will see this item and get in touch with you. Here's luck!

Al Alberts, 1869 East 29th St., Brooklyn, N. Y.:—We had flying model plans of the World War Spad in our February 1938 number of F.A. Maybe some reader with that copy can help you out, too. Otherwise, we suggest that you contact the model companies.

I. J. Baha, Jr., Coral Gables, Fla.:—The 1939 edition of *All the World's Aircraft* will not be published until December 1939. You can order it through your nearest bookseller. It will cost you something like \$16.00 a copy.

P. S., Fall River, Mass.:—If you are deaf in one ear, you should first consult your local Civil Aeronautics Authority physician who will be found at the nearest large airport. I can't decide medical questions of that kind. The two years of college required by the Army Air Corps, as we have explained so many times, refers to a certain degree of education, particularly in mathematics. It means you could not even attempt to pass the educational examination unless you have had the equivalent of two years of college. Yep, it's tough.

Thomas J. Fenton, New York City:—The book *All the World's Aircraft* is a British publication and costs about \$16.00 in New York City. You can get a copy by applying at the Brentano Book Shop on Fifth Avenue, near 48th Street.

—BY ARCH WHITEHOUSE.

And Now We'll Ask You a Few

- 1—What type planes did the Germans use in their raids on Scapa Flow?
- 2—What is a Flak 88-mm. gun?
- 3—What is a "cadre" squadron?
- 4—How many editions of *The Aircraft Year Book* have been published by the Aeronautical Chamber of Commerce?
- 5—Who is Sir Kingsley Wood?
- 6—What is the most effective A-A gun thus far used in the European War?
- 7—What American-type planes are being used in the present conflict?
- 8—What is the price of the Porterfield light plane?
- 9—How many Lockheed Hudsons were delivered to the British before the embargo?
- 10—Has the Bell Airacuda been ordered by the U. S. Army Air Corps?

(Answers on page 67)

Nationals results of the October F.A. And on top of that we spoke of Charleston, Michigan, when we should have said Charleston, West Virginia. Good grief! When it rains it po-o-o-o-o-urs! (Aside to office boy: "Hey, run out and buy us a good geography—QUICK! And don't spare West Virginia!")

R. J. Lamm, Freeport, L. I.:—I surely respect your opinions on the present war and appreciate your desire to do something about it. But it happens that there is a neutrality law in effect in this country which forbids any American citizen to serve in any foreign service under a penal-

Modern Planes Album



Lockheed C-40B "Stratofighter"

LOCKHEED C-40B "STRATOFIGHTER" THOUGH it is not the official designation, we have dubbed this plane with the name "Stratofighter" because of the peculiar work demanded of it. This machine was designed and test flown by the Lockheed Aircraft Corporation of Burbank, California. In all probability, it is an improvement on the original Lockheed XC-35 experimental stratoliner job which the company turned out some time ago.

To this particular model, however, has been added a somewhat cumbersome tricycle landing gear. But note

that the tail wheel has been left on—just in case. The cabin itself has a fewer number of windows than the original stratosphere job, which may indicate that they have really been working on a suitable pressure cabin. The plane is listed with the Army as the Lockheed C-40B.

Thus far, this craft has been powered with two 450 Wasps, but no doubt it's stressed for more power than that. Meanwhile, the present engines are suitable for the work of testing the ship at high altitude and for working out some of the pressure-cabin problems. At any rate, we figure

higher powered engines may be fitted later.

Further examination brings out the fact that the C-40B is a special version of the Electra insofar as general lines are concerned. Provision has been made for a crew of six comprised of two pilots, a radio and pressure-compartment operator, and three pressure-compartment observers. The pilots are seated side-by-side in the normal manner.

The entire fuselage, with the exception of a portion near the tail, has been designed as a pressure compartment, and all members of the crew work under pressure conditions at stratosphere altitude. The oxygen arrangements included are for emergency use only, since the supercharging and ventilating systems of the cabin assures a normal supply of good breathing air under ordinary operating conditions.

The duties of such a plane may be varied. Its size indicates that it might be used as a long distance bomber. Similarly, it might carry out long distance reconnaissance raids. Or it could, if suitably armed, provide deadly fighting power against enemy raiders approaching at high altitude. Such a fleet of fighters operating at a higher altitude would have a great edge over the raiders.

NORTHROP A-17 ATTACK PLANE

NOW we will go into some detail on the plane that is considered tops at present in the attack field—a ship that will be so considered until the Vultee (see next page) offers proof that it is better.

The first machine on the attack list today—that is, the plane which will be found in the Army Air Corps hangars—is the Northrop A-17. It's manufactured by the Northrop Division of the Douglas Aircraft Company at Santa Monica, California.

This machine is a two-place low-wing type with a wing built in three sections—two outerpanels and a center-section built integral with the fuselage. The wings are all-metal with stressed skin cellular structure. The ailerons are metal-framed and covered with fabric. The wings also carry split trailing-edge flaps.

The fuselage is constructed of light alloy in monocoque form with smooth stressed skin. And the undercarriage is a fixed cantilever type gear with single oleo legs. The legs and wheels have streamlined fairings, but the wheels are only partially covered. The



Northrop A-17 Attack Plane

tail wheel is a full-swiveling caster.

A 750-h.p. Twin Wasp Jr. engine gives the plane a rated top speed of 210 m.p.h. It cruises at 172 and climbs 2,500 feet per minute. The service ceiling is reported as 20,700 feet and the absolute ceiling 22,150 feet.

There are five forward guns, all of .30 caliber. The observer has but one. Twenty small bombs or four larger ones (weight unspecified) can be car-

ried, or an alternative load of chemical spraying or smoke-screen apparatus may be toted. The cockpits are set in tandem with a sliding hatch to protect both pilot and observer.

The same company has provided one 100-plane order of A-17's, and an additional order for 29 more has been given out. In addition, 54 Northrop BT-1 dive bombers have been ordered by the Navy.

OUR AIRCRAFT FEATURE IN NEW FOTO FORM

Yep, from now on these popular pages will give you real camera studies of the late sky jobs instead of sketches, as formerly. And we start off our new foto Album this month with four

American warplanes—two fighters and two attacks.



Curtiss P-36C Pursuit

CURTISS P-36C PURSUIT

IN most cases in the past, when sketches were used in this department, we presented the available details on new type planes as fast as we could get data on them from which our artist, Alden McWilliams, could work. But by the time the ships had passed through the various testing fields, improvements and refinements had been added, which changed the picture.

Our new "foto-ized" Modern Planes Album, however, enables us to note how the craft finally turns out by the time the American service pilots get their hands on them.

Take this new Curtiss P-36C, for instance. Here is a job which is now quite different from the original model as tested at Wright Field. The insignia on the side, incidentally, is the famous striking eagle of the 27th Pursuit Squadron.

The P-36C is manufactured by the Curtiss Aeroplane Corporation at Buffalo, N. Y. A single-seat fighter of low wing design, it is all-metal in construction and powered with the Pratt & Whitney Twin-Wasp engine which turns out 1,100 h.p.

The Curtiss company has turned out 250 of these jobs for the Army Air Corps. Here are further details of the plane: It has a retractable landing gear, retracting tail wheel, split flaps, flotation gear, and a three-bladed constant speed airscrew. The armament at present consists of but two guns, which are set high in the engine cowlings. They are, in all probability, Browning .30 caliber weapons. The letter "C" in the type designation means this craft is the third type of the general series.

The fuselage and wings are so designed as to facilitate the quick removal and replacement of any particular section—a decidedly important point in a warplane. The bottom of the fuselage is especially constructed and re-inforced to withstand a "belly" landing in case the retracted wheels jam and cannot be lowered. We do not have the top speed figure on this model—but it's known to do better than 250 m.p.h.

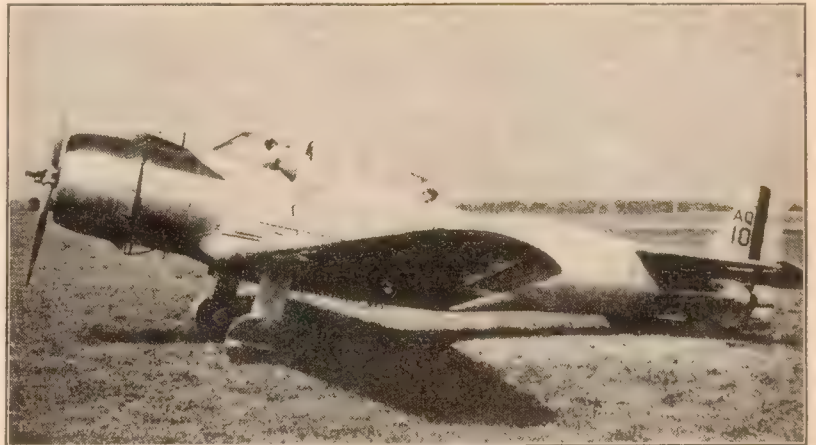
VULTEE YA-19 ATTACK PLANE

THIS being another attack plane, let us say a few words here about that specific branch of military aviation: The attack job is still plainly an American weapon, since no great European power has yet considered it as a necessary individual type. Over there they believe in making one type bear a number of duties, meaning that the plane used for attack in Europe would also be designed to carry out day bombing, reconnaissance, photography, and Army-Cooperation work in general.

But the United States feels that the attack ship has a definite place in its Air Service, therefore several special Attack Squadrons have been formed and put into service. Their work is to hound and harass the enemy, in what amounts to hedge-hop flying, by attacking with machine-gun fire, fragmentation or heavier bombs.

For this reason, then, the attack ship must be built with a wide and elastic accommodation for bombs, plus as many machine guns as it can carry.

The new Vultee YA-19 attack job, shown here, is still on the service test list. It is an improvement on the



Vultee YA-19 Attack Plane

earlier models, such as the V-11-GB, which was sold in large numbers to China, Turkey, Brazil, and the U. S. S. R. Not until recently did the United States Government show much interest in the Vultee products. But this model did prove attractive to the Air Corps. And if it comes up to expectations, it is quite possible that many will be ordered to fill out the wide program of air rearmament.

This plane is manufactured at the Vultee Aircraft Division of the Aviation Manufacturing Corporation, of Downey, California. It is powered with the R-1830-17 model of the Pratt & Whitney Wasp Jr., which turns out 1,200 h.p. at take-off. It is an all-metal job with retracting landing gear, a three section wing, and split trailing-edge flaps. It has a top speed of about 220 fully loaded as an attack plane.

Youth AIRMENT News



Here's our bright clearing house of info regarding the CAA pilot training program and kindred subjects. Brief, newsy bits—of interest to casual fans as well as actual candidates—will be our specialty each month in these columns.

CAA Schools Top 400

Three-hundred schools was the CAA's tentative goal for the 1939-1940 college pilot training program. Yet by October 16 no less than 404 institutions had been approved—and it wasn't expected that the entry books would close short of the 410 mark. That's real high revving.

Aero Aptitude Studied

Special nerve reaction checks, tests of eye co-ordination in flight, and other flying aptitude studies of the thousands of new CAA air students are being conducted through the Air Corps and the National Research Council. A sum of \$100,000 was set aside for the investigation, and in line with a scheme of co-operation by private firms, Eastman Kodak has furnished cameras for photographing pilots' eyes while in flight. Through similar studies, the Air Corps has achieved a basis of student selection whereby 50 out of 100 prospective flyers are graduated, and the new broad research is expected to lead to a bettering of even this number. The old system produced only 25 grads out of 100.

Color-Blind Cadets

Speaking of eye tests, our Air Corps has recently uncovered a new kind of color blindness among cadet pilots—a faulty condition in which the affected students find that red lights look like green ones. Basically, this trouble is blamed on the fact that both red and green rays are combined in red signal lights. Coming through fog or smoke, the red beams are warped in such fashion that the defective person fails to see them. But the green rays easily penetrate, causing the imperfect-eyed student to identify the light as green. Good flying eyes, say the Army medics, must offer: (1) Accuracy of vision, (2) Efficiency of the muscles that

govern the movements of the eyes, (3) Ability to judge distance, and (4) Discrimination of color.

U.S. Behind In Speed

That America needs new speed records to bolster her international aero standing was recently emphasized by Charles F. Horner, President of the NAA. "Today," said Mr. Horner, "we are only fifth on the list, while Germany and Italy occupy the top two positions." The present tabulation of the world's civil and military speed mark holders and their number of records follows: Germany, 36; Italy, 34; France, 24; Russia, 23; United States, 17; Great Britain, 11; Australia, Belgium, Japan, and ill-fated Poland, 3 each.

Money For "Paper Flying"

If you hold a student's pilot certificate or better, you should try your writing hand in the \$500 prize essay contest just launched by the National Intercollegiate Flying Club, Dupont Circle, Washington, D.C. Limited to between 1,000 and 1,200 words, the essays are to be on the subject of "the cultural value of flying," and the first three place winners will cop \$300, \$150, and \$50, respectively. January 15 is the deadline on entries. You don't have to be a college grad to get in on this, either.

Grammar School Aviation

Hardly more than 1 percent of the many secondary schools recently studied by Air Youth of America were found to offer their students anything in the aero line, although research by Northwestern University has shown that most 2nd-to-8th graders want to be airmen. Thus the newly-formed AYA has a wide, aero-eager field in which to work. The group plans to promote model building model competitions, elementary aviation design studies, and voca-

tional investigations looking toward getting youngsters into the aeronautical field. AYA headquarters are at 30 Rockefeller Plaza, New York City.

Girls "Go For" It

Questionnaires, incidentally, were sent by the AYA to thousands of high school studies—and no less than 5,000 girls came through to say they were interested in studying aviation! Yes, the final check showed that in the H.S. group one girl to every eight boys has an aero hankering. Now, F.A. reader, how about you? Would you rather be a policeman, an engineer, or a soldier—than a flyer? If so, don't tell anybody. For that was the vote among the boys down in the kindergartens.

Bats!

The screwball of the month turned out to be a stude pilot with a super-gas-tanked Aeronca named the *Screwball 1*. CAA officials found him at Manchester, N. H.—ready to buzz off across the Atlantic "to take a hand in bringing peace to Europe"! Anyhow, the said officials quickly brought peace—to his parents. In short, they put the kibosh on his screwballing.

Wing To Three R's

Very likely the Brothers Darty—Jack, 12, and Bob, 10—have found that going to school is better than getting there. Their father just had them fly 6,809 miles, from Rio de Janeiro, Brazil, to Laurel, Md., to attend Avondale Country School. Pan American Airways carried the boys 5,777 miles of their trip and Eastern Air Lines hopped them the other 1,032 miles.

Modeling At R. I. State

Under the guidance of Dr. Nicholas Alexander, aero engineering students at Rhode Island State College build special workable models illustrating airflow around wings, blind landing practice, variations of pressure according to altitude, and other aeronautical principles and operations pertinent to their studies. Igor I. Sikorsky, renowned clipper plane designer, lectures at the school once each month. Inclusive of a 60-foot wind tunnel, aero equipment at the college is valued at \$250,000.

Nice Going, Balto!

Sixty lucky Baltimore fellows are now learning how to make and assemble aircraft parts through arrangements made by the Public School Placement Bureau of that city with the Glenn L. Martin aero plant. On a really professional five-day, eight-hour, time clock punching schedule, the lads are trained to become skilled aircraft workers right at the factory. Though parts they make are not used in actual planes, graduates of the course are eligible for employment.

Slipstream Briefs

This year, the Navy's monthly preliminary aviation cadet classes at
(Continued on page 65)

HAPPY LANDINGS

BY ARCH WHITEHOUSE



It IS a Funny War!

LAST MONTH, in my article, "This Sky War—Is Different!" I sort of dropped the hint that this present European war was quite lacking in elements of humor. Well, fellows, I take it all back! I was a little hasty about that point.

My friends abroad, who keep me well informed as to what is going on, have made me change my mind. This is a funny war—at least the way the British are playing it. And I can see now that the 'Arrys, Alfs, and Berts I knew in the First Big Scrap are still in there pitching the quips.

The funniest war cartoon I have seen thus far appeared in a recent issue of the *London Bystander*. That's the magazine, you know, that discovered Bruce Bairnsfather and his "Old Bill" character. Anyway, this *Bystander* drawing depicted a German Storm Trooper walking up and down the streets of Potsdam with a large bag and a stick with a steel point on it. He is seen jabbing at small leaflets that have been dropped, and he is counting—very mournfully: "Three million and one . . . Three million and two . . ."

On the opposite page Old Bill—now a civilian—is wearing his gas mask in his favorite pub. The landlord, also in a mask, has drawn Bill his regulation beaker of beer and is saying: "Well, I've poured it out for ye—but the Warden says yer mustn't take yer gas mask off for another hour yet." A statement which leaves thirsty Old Bill quite stunned.

But let's go back to the business of dropping leaflets all over Germany. One of the prize stories follows:

One of the British propaganda bombers was greatly overdue in returning from its night leaflet raid over Germany. Naturally, the C.O. was very much upset about the fate of the pilot and his crew, and there was some talk of reporting the whole lot missing. However, after another three hours, the plane came rumbling

in, and the members of the crew crawled out, a bit weary, but wearing very satisfied grins on their mugs.

"But where the deuce have you been?" demanded the Commander, very irate. "What's the meaning of this lateness?"

"Well, Sir," the young pilot explained, "it was like this: We got over Germany all right. Nothing bothered us, and it was a bit dud and quiet. So seeing how things were, we just dropped down, landed—and stuck the leaflets under their doors!"

And knowing some of those screwy birds, I figure that's just what some of 'em might do!

But there's another side to the leaflet story—a gag about the lad who

ing and got that worthy out of bed.

"I want a gas mask quick. I'm just reporting for my New National Service job, and I may be busy at any minute."

The exasperated Air Warden rubbed his eyes and tried to make some sense out of it: "What is your new job?" he huffily asked.

"I'm keeper of the new mortuary, Sir," the very patriotic gentleman explained.

Still another story we like is that told about a youngster who found a soft, high-paying job in a munitions factory. This young egotist decided to criticize a veteran old enough to be his father, who was doing guard duty at the factory.

"Hi, Dad! Haven't you got your rifle on the wrong shoulder?" the smart Alec bellowed.

The old soldier looked up, glanced at his rifle, and said: "Yes, Son. It ought to be on yours."

One British newspaper, the *Daily Express*, devotes one full page every day to what they term the humorous side of the war. And somehow they manage to find enough jokes and skits to fill it up.

One woman dropped into a book shop and obtained the No. 3 *Air Raid Precautions* volume. The clerk also offered her one on anti-gas precautions, but she sniffed and said: "Oh, I don't need that. We've just had electricity wired into our house."

And have you heard of the new song the British Tommies are singing? It goes like this:

*Run, Adolf! Run, run, run!
Look what you've gone and done,
done, done!
We will knock the stuffing out of you,
Field Marshal Goering, and Goebbels,
too.
You'll lose your place in the sun, sun,
sun!
Soon, you poor dog, you'll have none,
none, none!*

(Continued on page 64)



came back startlingly quick. It seemed that he had hardly left his field when he was back again and running the bomber into the hangar.

"Look here!" the C.O. said this time. "Confound it, you haven't been to Germany and got rid of all that stuff already have you?"

"Yes, Sir," came the skyman's reply. "That is, we went over the line, and—well, we just dumped the leaflets over wholesale!"

"Do you mean to say you just let the lot go—without untieing the bundles?" the Commander gasped. "Why those bundles are heavy. You might have hurt someone!"

ANOTHER anecdote tells how one anxious lad reported to an Air Warden's post at 4:30 in the morn-

Flying Aces Club News

Miniature models! How to make nifty foto Christmas cards! And our latest Distinguished Service Medal winner! All this interesting dope just revved off Clint Randall's trusty Underwood is awaiting you Clubsters right here. Snuggle down into your chair and dig into it, lads—

By Clint Randall

National Adjutant, Flying Aces Club

WE'VE got many things to talk about this month, Clubsters, so Clint's gonna get right into the meat of the news without throwing in his usual two cents. Okay, then, rev her up! Here we go—

SPEAKING of small things, just take a quick gander to the right. Waddaya see? Well look again—closer this time. Ah! There they are! Fee itty fail dobs—we mean three little scale jobs. (That fish song is still getting us down!) And to each of the fellows who fabricated these extremely tiny models—Russell Bohne, of Lawrence, Mass., Bill Poythress, of Brooklyn, and Henry Lunardi, of Philadelphia—we are awarding a swell F.A. wing insignia for sewing on sweater or cap.

For a short time, Henry Lunardi held the record for smallness with his $\frac{5}{8}$ " span racer, but now the ships of both Russ Bohne ($\frac{1}{2}$ " span) and Bill Poythress ($\frac{3}{8}$ " span) have knocked his record for a row of daisies. Yes, Bill P. holds the record. What's more, his letter promises us something even smaller. Says this Clubster:

"After reading about Henry Lunardi's small craft, I sat down and turned out a little scale job of a North American NA-16-2 with a $\frac{3}{8}$ " span. And I'm now all set to make one with a $\frac{3}{16}$ " span—only this time I'll have to work with a magnifying glass or maybe even a high-powered microscope!"

So much for our super-nothingness models until next month. Now for a top-notch suggestion and another D.S.M. winner—

YOU camera-fan F.A.C.'s who've got some aero snaps in your files might try making Christmas cards similar to the one shown on this page. It won't be much of a job, either, because

Left: A tip to you photo bugs is to make up your own aero Christmas greeting cards—something similar to this. For with Santa Claus time just around the second next corner, there's nothing like a neat holiday reminder to let your friends know your prop's still ticking over. In the accompanying copy, Clint tells you all the why's and how's of making these cards, too! Below: Once again the F.A. Distinguished Service Medal is being awarded to our Master Model Builder of the Month. This time our decoration goes to Gordon Vars for this swell Curtiss A-18, built from plans appearing in our June, 1938, issue.



Getting smaller! Yes, many Clubsters are turning out these surprising miniatures to compete for our "Tiniest Model" title. And here, from left to right, we have Bill Poythress' $\frac{3}{8}$ " NA-16-2, Russell Bohne's $\frac{1}{2}$ " P-35, and Henry Lunardi's originally-designed $\frac{5}{8}$ "-er. This photo was reproduced in exact size, too, and you fellows can compare the craft to that inch ruler to be sure we aren't pulling a fast one on you.

all you've gotta do is mask or cut down your favorite film to the exact size you want, then print on oversize dull paper carrying your printed Xmas greeting. And when that's done, you'll have a splendid card that'll not only be different but will show that you're plenty airminded into the bargain.

Of course, you might be able to think of something extra novel in the aero photo line to put on your cards. Some fellows, of course, put on shots of themselves standing next to a plane, instead of a flight scene. But whatever you finally print up, you can bet your last strip of balsa that your aero pals will get a great kick out of your card.

Job printed greetings can be obtained on blank cards all ready to have your photo put on. Or the greeting can be printed on later. But if you don't want to go in for job-printing you can do your own lettering. The card we reproduce here, by the way, was turned out last year by Fred E. Bamberger, of New York City, aviation writer.

The D.S.M. contest
(Continued on page 80)



With the best of
Holiday Wishes



JOIN THE FLYING ACES CLUB

Honorary Members

President and Mrs. Franklin D. Roosevelt
Vice Pres. John Nance Garner

Casey Jones	Rear-Admiral Byrd
Wallace Beery	Capt. Eddie Rickenbacker
Al Williams	Colonel W. A. Bishop
Col. Searoni	Major G. A. Vaughn, Jr.
Major von Schleich	Willy Coppins
Lieut.-Col. Pinsard	General Balbo
G. M. Bellanca	Walter H. Boech
Capt. B. Sergievsky	Frankie Thomas
John K. Northrop	Dwane L. Wallace
Colonel Roscoe Turner	Josef Veltjens
Charles W. A. Scott	Maj. A. P. de Seversky
Richard C. DuPont	Donald W. Douglas
Maj. A. W. Stevens	Major C. C. Moseley
Capt. O. A. Anderson	Clarence D. Chamberlin
Major Fred Lord	Mrs. Charles S. Bayliss
	Lieut.-Col. Theodore Roosevelt

Official Charters

F.A.C. Flights and Squadrons are recognized at GHQ only after they have received their official charters. These illustrated documents, printed on fine paper and portraying various features in the field of aviation, are excellent for framing and display. Their inspirational text is in keeping with the high ideals and aims of our Club. Each charter application must include a full list of proposed group members and their addresses. Each of these members must hold his regular F.A.C. card, obtained by clipping and sending in the membership coupon printed on this page. If applications are approved, Flight Charters are issued for 25c, and Squadron Charters for 50c. Send the correct fee with your application. It will be returned if the Charter is not granted.

WIN YOUR WINGS
Save This Whole Coupon for
CADET OR PILOT
insignia of the F.A.C.



All members with Official Membership Cards are eligible for Cadet Wings. This coupon, with two others and 10c, entitles members to Cadet Wings. Do not send this coupon alone. Save it until you have three. Then send them in all together with a self-addressed envelope and 10c to cover cost of wrapping and mailing.



All enrolled members who have won their Cadet Wings are eligible for Pilot's Wings. This coupon, with four others and 10c, entitles Cadets to Pilot's Wings. Do not send this coupon alone. Save it until you have five. Then send them all together with a self-addressed envelope and 10c to cover cost of mailing.

Send the Whole Coupon

regardless of which kind of wings you wish. Separate sets of coupons are needed for each insignia. Canadians send 15c, or three International Reply Coupons. Overseas readers send 1/-, or five Reply Coupons secured at the Post Office. Only one pair of either kind of wings to a member. If yours are lost, send 25c for new ones (2/- overseas). [10]

Do Your Full Share to Advance Aviation

To advance the cause of aviation, over 50,000 men and women, boys and girls, have banded together to form the FLYING ACES CLUB.

It is the easiest club in the world to join. Just clip the membership coupon, fill out, and mail it to GHQ with a stamped, self-addressed envelope. Your official card will then be forwarded to you. After joining, you can quickly win promotion and the right to wear the various insignia of the Club.

In the FLYING ACES CLUB there are two kinds of local organizations, known respectively as Squadrons and Flights. A Squadron must have eighteen members, including its leader. A Flight must have a total of six. You can start either of these groups in your own community by enrolling your friends in the Club, then applying for an official charter as detailed in the column at the left. Each member must hold an F.A.C. card.

Meetings and activities are conducted among the squadrons and flights according to the wishes of the members. GHQ has established no rulings in this respect, nor are there any dues or red tape whatsoever. The entire idea of the Club is a common meeting ground in an international organization for the lovers of aviation in its various phases. Many local Squadrons and Flights hold regular contests and public events. Many hold weekly meetings for model building, and instruction, and even regular flight training.

Awards and the Aces Escadrille

After the membership card, and Cadet and Pilot's wings, comes the Ace's Star. This is awarded for enrolling five new members, using, of course, a separate coupon for each. As an Ace, you are then eligible for membership in the FLYING ACES ESCADRILLE. Then you may win truly handsome awards. Among these are the Distinguished Service Medal and the Medal of Honor, two of the finest decorations that have ever been designed.

Any member who has reached the rank of Ace is eligible for membership in the FLYING ACES ESCADRILLE, an advanced organization which replaces the old G-2 unit and opens the way for participation in a definite program contributing to the forward movement of aviation.

To enroll, an Ace must apply direct to Escadrille Headquarters, giving his name, age, address, rank, and highest award already won in the Club, and enclosing a stamped, addressed return envelope. If he is approved for membership his instructions will be forwarded. Membership in the Escadrille is limited to American and Canadian members only, at present.

Special Service! This Aviator's Positive Identification Bracelet



Registration and Bracelet Only 25c!

A valuable identification service for F.A.C. members is now offered with our World War type aviator's bracelet. Every one now issued will bear a serial number—which is the key to your confidential identification record on file at GHQ. In emergencies where prompt identification is needed, this number may be sent to GHQ, and identification facts will then be furnished. When ordering, send your name, address, occupation and full physical description—age, height, weight, color of eyes, hair and complexion, etc., together with name and address of nearest kin. Overseas readers may receive bracelets and be registered for 2/- in coins or Int. Money Order for same amount.

Keepers of the Log

In order to keep in touch with GHQ, every squadron should appoint a member with a facility for writing as Keeper of the Log. It shall be the duty of the Keeper of the Log to send in regular reports of interesting doings of his squadron. His is an important job, because it is only by means of interesting squadron reports that life can be given to the Flying Aces Club News.

Photographs, too, are an important consideration for the Keeper of the Log. Either the Keeper himself, or any other member with a camera, should keep a photographic record of the squadron's activities, for reference purposes, to show prospective new members, and to allow a selection of pictures to be sent to GHQ for reproduction in our monthly Club News pages.

The cost of film, prints, etc., would be a legitimate charge against the squadron's own treasury or could be covered by members' contributions. A number of flights and squadrons, incidentally, send us prints which have been taken, and completely developed and printed by foto-fan members of the outfit.

Correspondence

In all correspondence with GHQ where a reply is desired, enclose a stamped, self-addressed return envelope with your letter. GHQ receives thousands of letters weekly, and cannot undertake to answer those who do not heed this rule.

Official Supplies

Due to popular request, we have ordered a new supply of F.A.C. paper penants. These attractive stickers, which have glue on the back so that they may be stuck onto car windows, etc., sell at 6 for 10c, or 20 for 25c.

We also have a new supply of swell embroidered wing insignia that'll look top-notch on your sweater. They're made of the official Flying Aces Club colors, blue and gold, and are available at 25c each. Order now before the supply is exhausted.

(Overseas prices: Penants, 20 for 2/-; wing insignia, 1/6.)

January Membership Application

I, the undersigned, hereby make application for membership in the Flying Aces Club. I agree to live up to its rules and regulations; to foster the growth and development of aviation; and cooperate with all other members in the work of spreading aviation information, building up confidence in flying for national defense and transportation. I will aim to build up the Club and its membership, and do my best to win the honors that the Flying Aces Club offers.

My name is
Age [10]
Street
City State

Do you build airplane models?.....
Mail this application, enclosing a self-addressed, stamped envelope. Canadian and overseas readers send the application, self-addressed envelope, and an International Reply Coupon worth 5c, secured at the Post Office.

FLYING ACES CLUB, 67 W. 44th St., New York

On the Light Plane Tarmac

BUY IT NOW!

LIGHT PLANE FLYING has really begun to move. And if you don't want to be left behind, you'd better start making plans now. Let us explain what we mean: As we see it, 1940 will usher in a time of grief for the boys who delay getting into the game—for if sport flying progresses as fast as indications promise, you soon may have trouble getting your hands on a ship, even though you have a certified check in your pocket to pay for it outright!

Yes, that's the way things look, war or no war.

In the first place, the so-called quality magazines have just discovered that real people are actually flying for fun and that they are now getting back from their week-ends "right side up with care." They are not coming home in the ambulance as the result of a four-car crash on a No. 1 highway somewhere. Instead, they are taking off, giving her the gun, and getting out into the clear long before the automobilist has found his road map.

The quality magazines are telling their readers that Jack and Jessie and a lot of other real people are flying these Cubs, Taylorcrafts, and Aeroncas. The man in the street and his neighbors are getting out of the street and actually buying these little planes and flying them themselves. The picture magazines like *Life* and *Look* have found out all about it, too. They're showing pictures on how to make a landing with a Cub. You know—"you come in slow, let her glide over the grass, put your tail down, and—well, that's all there is to it."

Esquire has likewise come along to tell its readers that a new light plane

can be bought for \$1,450, and pictures are included of one or two—in color—just to prove it. Until now, the home reading public apparently hadn't heard much about the Cub, Aeronca, Taylorcraft, Porterfield—or Luscombe. (We mustn't forget that Luscombe. If we did, we'd have half of Trenton, N. J., down on our necks.)

In short, the private pilot is still something of a ninety-day wonder in the family mags. Sure, they'd heard tell about Vance Breeze, Donald Douglas, Roscoe Turner, and Bennie Howard. But now they've found out something new—that Otis Q. Plimsole, the suburbanite, actually flies;

go out to their airports to check on the game and perhaps get into it. And now that we have accomplished that, the quality guys step in and figure out that the business is about ready to be taken over.

Fine, we say! We hope every big publication will get on the bandwagon. Already some of the more important weeklies have gathered in some of the juicy advertising. We see Cub and Taylorcraft in the *Saturday Evening Post*, whereas we of F.A. could never get the firms to give us a one-column insertion. They'll write to us and ask our opinion on certain phases of the industry, and they'll get us to give them ideas for the organization of flying clubs. But you can't get them to spend ten cents for advertising in the magazines that have done so much to initially build up their business via the painstaking education route.

As we say, the big magazines are going to take over the light plane in a big way and someone is going to have to pay for it. We would like to believe that it would all result in lower prices and cheaper flying, but we doubt that it will for several years. The big magazines will take most of the gravy in advertising for a time and the light plane manufacturer will have to add that to his selling price. All the smaller firms will be drawn into it, too, because when one manufacturer starts advertising in a national weekly, they all have to fall in line.

So we are facing the same situation the automobile went through prior to the World War. In 1914 the automobile was just becoming an accepted obstruction in modern traffic. The first Fords were running off the initial assembly line. Then came the war, and for three years the business boomed, with the U.S. building and selling thousands of cars and trucks to the Allied Forces.

In those days, the ordinary person was virtually unable to purchase a new car at a price, unless he had an "in." Later, when the United States went into the war, it was practically impossible to get delivery on anything short of a Cadillac.

Right after the war, Dodge roadsters were selling for \$1,895 and crowds hung about the showrooms waving checks and currency, trying to

Buy It Now!

Our School Quiz

Lauding the Light
Jobs

flies his own plane, in fact, which he can now readily afford.

So that's the pay off. Any day now, the light plane will go Ford-Chevy-Plymouth on us, and we'll all be out in the cold, standing in line trying to get a down payment on a rebuilt second-hand model we could have picked up for a song a few months before.

Since back in 1935, we have been pounding out a small but sincere department here concerning light planes and sport flying. And we believe we have induced quite a few readers to



Left: Ooof! Did the drought catch up with this Cub seaplane? Nope, fansa, this is just that Edopontooned job that the surprising Al Bennett, of Hightstown, N. J., operates at will off either liquids or solids. The Lenape Papoose powered Piper JP-3 is the full name of this craft which Al personally considers an amphibian.

Right: If you're buzzing your sport plane around New York City, don't go in for any "rodeo flying" while one of these babies is on hand. For that word on the fuselage is "Police," and you'll get flagged down and handed a ticket before you can say "Stinson." Which is just what this is—a float-fitted version of the renowned Reliant. Mighty snappy bus, huh?

get a deposit on something with a wheel at each corner. Anyone sporting a new Ford was considered sitting pretty.

The crash came, of course, and overnight you could get anything you wanted. But you still had to pay plenty of money for it. It even looked for a time as though the motorcycle and sidecar would become a regular feature of the landscape. It took nearly ten years before things came down to normal for our friend Otis Q. Plimsole. And by that time, while prices were down, he was down, too—because a depression sank in its fangs. So there was Otis—still out in the cold.

Today, exactly the same situation is being faced. For years, the light plane industry has subsisted on the loyalty of a very small minority of air mag reading aviation enthusiasts. They have kept the industry going while the big magazines totally ignored the fact that there was a light, cheap-to-fly plane for the man in the street. The war, whether we are in it or not, will make a great deal of difference in the output of light planes. The Government is up to its neck trying to catch up in the military market.

The light plane plants have practically been taken over already for the production of jobs for the training of college boys. The ordinary guy, if he has learned to fly, will be quickly nabbed by Uncle Sam if we get into the present Big Scrap.

Those of you who still want to fly, and who are still willing to pay a normal fee for tuition and a fair price for a plane, will, we believe, have tough sledding if you delay until next summer.

If you're a prospective plane buyer, it might be a good idea to get out the bank book now and see how much you can get together for a deposit on some sport job. If the industry runs into a war scare and the big magazines continue to work on the light airplane manufacturers, the makers will be getting three grand for a 40-h.p. Mugwump, minus instruments, inner tubes, and flyaway Hangnail, South Dakota.

Well, we had a lot of fun here editorially god-fathering the game through its childhood. Now watch sport flying go!

OUR SCHOOL QUIZ

EVERY MONTH we get a stack of letters from would-be pilots asking us what they should do about



the air school business. They send us lists of schools and ask us to tell them which they should attend.

This sort of thing, of course, puts us on the spot.

In the first place, to be able to give fair answers to such questions we would have to continually inspect all the schools, meanwhile setting ourselves up as a kind of authority. But this is physically impossible for us. Anyhow, to give opinions without such personal study would only be unfair to all concerned.

But what we *can* do in cases like this is to figuratively interview the



This personable chap is Art Joel, Assistant Commander of the No. 1 Squadron, Flying Aces Club of California. An expert pilot, he won that striking silver cup in the spot landing contest of a recent sky show at the Los Angeles Municipal Airport.

writer and get him to answer certain questions. Once he has done this, he should have some idea himself how to make his selection. Now here is our quiz and the pertinent comments thereto—

1—Is this school you have in mind a Government approved school? Make certain of this point before you spend a cent.

2—Is it near enough to you to be convenient? If it's a considerable distance away, you must add the travel cost to your budget.

3—Is it located where living is cheap? You can cut down plenty by living in less expensive sections of the country.

4—If it is an actual flying course you contemplate taking, is the school in a section of the country where the weather is generally good—where you can get plenty of flying over a comparatively short space of time?

5—Is the school's field located at a place where ground conditions are really safe for flight training? A school with an airport on the edge of a busy industrial city is not to be compared with one set out in a country section where there is plenty of landing ground.

6—Can you afford to take this course? We mean, can you finish it financially once you start? Don't try it until you are certain you can go from A to Z.

7—Do you know what you are actually heading for? Are you sure the course you have in mind has sufficient ground training and sufficient flight training? Does it include any shop work or blind flying? Does it include a worth-while radio course?

8—Are you certain that you are fitted for flight work, or would you make a better ground man? Several big firms needed many trained aircraft workers, as we went to press. But they indicated that they had enough pilots.

Once you have clearly answered these questions in the light of your own needs, you should have no trouble in deciding which school you should enter.

LAUDING THE LIGHT JOBS

OUR BEST LETTER this month came from a Canadian—Ross Smyth of Toronto, who has long been a good friend of FLYING ACES. Ross gives us a slant on light planes that hits the target and wins the two bucks. His observations are worthy ones;

Light Plane Editor:

Here is another non-flyer trying

for that two bucks. I am just finishing high school and am determined to get into this aviation game despite my poor eye-sight.

Anyhow my story hinges around a light plane stunt staged at the Canadian National Exhibition air display here in Toronto.

Pat Patterson, of Toronto, was at the controls of a 40-h.p. Cub and Red Foreman, a Memphis stunt pilot, was accompanying him. The idea was to stop the engine and put the ship into a smooth glide over the breakwater at about 500 feet altitude and in full

view of the crowd. Foreman then was to get out on the undercarriage, and when the prop was still he was to crank the engine by turning the prop. A slight drizzle, by the way, set a gloomy stage for the performance.

All went well—until Red tried to crank the engine. Several attempts failed! At 200 feet Red hurried back into the cabin.

"Well, I guess the boys are in for a ducking!" I thought as I watched.

But was I surprised when I saw the little Cub bank sharply to the right and head away from the lake

toward a mass of Exhibition buildings! She disappeared behind one structure.

I gave a sigh of relief as she came into sight again and neatly slipped over the fence of the small Exhibition race track for a dead-stick landing on the back stretch. Then within five minutes she flew out of the race track and headed for our new Island Airport.

What those light planes can do! A dead stick, a simple landing on the space at hand—and back she comes!

(Continued on page 65)

The Airmail Pals

• • •

SINCE we last gathered on this postal tarmac, Palsters, a great deal of things have happened in the European war. Right now, to be sure, there's some talk of peace, but as your ol' R.H.P.D. looks out over the broad Atlantic he can't see anything on the horizon that looks like that famed dove of peace. War or not, though, we'll just keep on hooking-up you scribblers to other missive makers. What's more, we promise to make the now-scarce foreign fellows' letters stretch just as far as possible.

Now that that's off our honorable chests, let's see what's happened in our A.P. world—

Bill Evans, of Camden, N. J., tells us that he's just completed his nine hours of dual aero instruction and is all set to solo. "In fact," he says, "I was all set to make that lone hop after I had finished six hours, according to my instructor. But he naturally wouldn't let me take her up until I had put in the time specified by the CAA."

Well, we immediately teamed Air Stude Bill up with Harold Hammer, of New York, who is also taking flight instruction. Now the fellows will be able to have a corking good time talking about their flying.



You airminded A.P.'s have certainly done a good job in supplying milk for the R.H.P.D.'s Kitty! Why, look! She's gone and grown wings! Seems to have her dander up, too. "Me-r-r-r-ow!" Probably itching to try her new flappers in a good dog-fight.

Hey there, Bob Fishman, of Boston! Why don't you sit down and drop a line to your pal Joe Dolny, of Cleveland? Joe says that you've completely stopped writing. What say, Bob, give him an answer, huh?

Frances Fogel, of La Paz, Ind., would like to contact Bill Appleton, of Sydney, Australia, right away. So, Bill, when you finish reading this do Fanny a favor and shoot a letter out right away.

Personal to Bob Smith: Frankie Corrie, Box 47, Defiance, Pa., received a pen pal letter from you—but you failed to include your return address. How's about contacting him pronto?

We've got a whole slew of correspondence left, boys, but we've gotta tell you all about our contest winner this trip, so the other missives will have to stand by. The prize-winning note of the month—the one that told best of the interesting doings of fellow ink-slingers—was penned by Dan Williams, of Gadsden, Texas. Dan says:

"Although my A.P., Toshio Enokida—who lives in Monterey, Calif., just across from the Golden Gate Exposition—and I have been writing to each other for nearly four years, it wasn't until after we had been corresponding for a full year that I learned he was Japanese, though I'd tagged him for a Far Easterner.

"Sleepy"—that's Toshio's nickname—has been giving me lessons in Nipponese, too. And no wonder that language isn't taught much in this country. Phew, it's a lulu!

"But I'm a little worried about Doug, my London, England, pal, because I haven't heard from him this month. I guess he's been spending his time crawling in and out of bomb shelters—or maybe he's enlisted.

"So here I am, with two A.P.'s—one a Japanese and the other an Englishman. I'm certainly fixed swell. Yes, this pen-friend business is the best ever!"

Well, you really spread your correspondence around, Dan. But we know that every day you're learning new things and having new experiences because of your postal pals. And right now we're putting a corking set of 3-views into the mail for you—Crash Carringer's Hale Hellion, Kerry Keen's old Black Bullet, and the well known Westland Pterodactyl V. Your Black Bullet plan is autographed by Arch Whitehouse, too!

That's all for this month, lads. We're running out of space again. So until next month—Happy Scribbling!

—THE RIGHT HONORABLE PAL DISTRIBUTOR.

• HOW TO GET AN AIRMAIL PAL

FIRST, write the best possible letter you know how. Use your best pen-and-ink handwriting or a typewriter. In your letter, introduce yourself fully—for this is the letter we'll forward to the pal we'll pick out for you. Tell your age, your interests in aviation, your other hobbies, and any additional items that might interest a new friend.

Then on a separate sheet tell the R.H.P.D. what kind of an Airmail Pal you want. Send your letters to Airmail Pals, FLYING ACES, 67 West 44th St., New York, N. Y. Be sure to enclose a stamped, self-addressed return envelope, plus five cents in stamps or coin for each pal requested (our fee for the R.H.P.D.'s "Kitty"). We'll try to supply you with a pal in line with your specifications, although we cannot guarantee to fill the bill exactly every time. Your new pal's letter will be sent to you, and yours to him—after which you will correspond direct.

Do not ask for "lists" of pals. We cannot supply them.

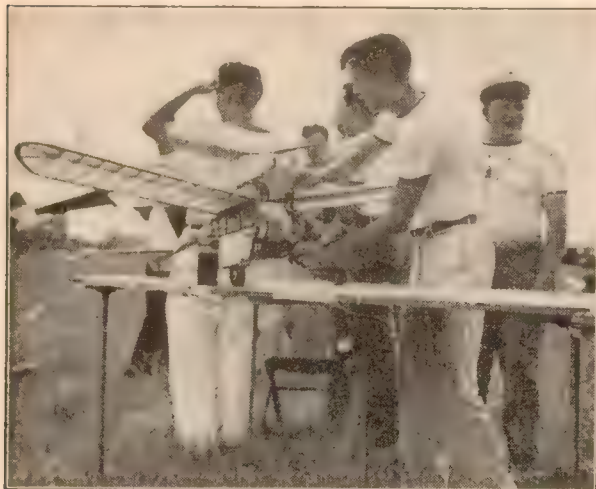
REGARDING FOREIGN PEN PALS

PLEASE NOTE that because of the present European war we cannot supply foreign pen pals in all cases. However, we will fill as many requests as possible, then when the supply runs short we will substitute domestic pen pals.

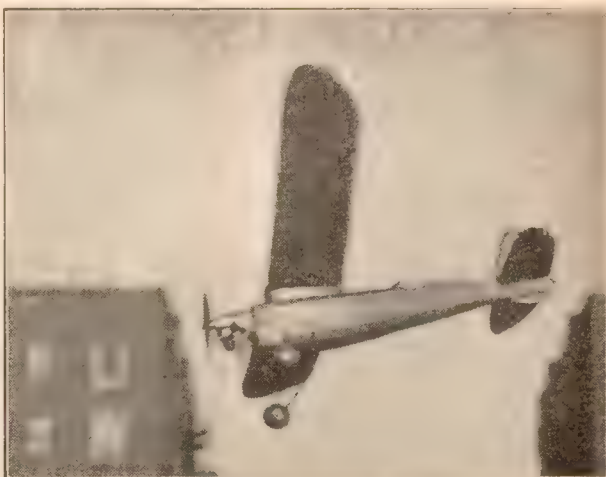
If you are an American resident and want an overseas pen pal, do not write a pen pal letter. Instead, send us a short note telling in a general way what kind of a chap you are and what kind of a pal you seek. Enclose a stamped, self-addressed return envelope and five cents for each pal called for. A foreign writer's letter will be sent to you, then you may correspond with him direct.

If you live outside of the United States and want an American pen pal, write a complete letter as described in the first paragraph of this box, and send it without the return envelope but with an International Reply Coupon worth five cents. Get the coupon from your local postoffice. Your letter will be forwarded to an American correspondent, after which you need only wait for his reply.

With the Model Builders



Bill Beck, of the Quaker City Gas Model Airplane Association, is all set to twirl the prop of his winning stunt ship. This shot was taken at the Q.C.G.M.A.A. Third Invitation Meet held in Philadelphia. That's Bill's booster battery on the table. (Photo by Maycheck.)



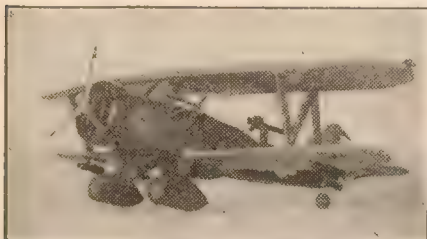
Does this gas model look familiar, boys? Well, it should—for it was built from Martin Powell's "Orbit" plans (June F.A.). Constructed by Irving Landaman of the Bronx, the "Orbit" is seen here coming in for a landing. Irv tells us that he built his ship in a jiffy and got some corking flights out of her. Swell photography, too, huh?



Left: This lucky lad—Earl Popp of Milwaukee—was given a hop to Detroit and back in one of P.C.A.'s ships as an award for winning the 1939 Wisconsin Gas Championships.



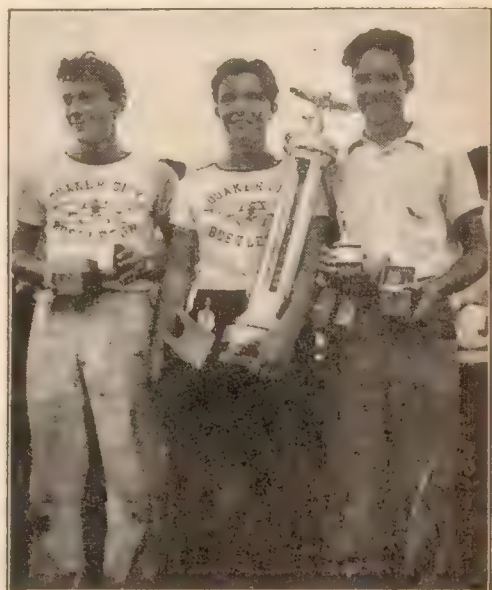
Right: Marion Rathbun, of Aurora, Ill., sends us this snap of her latest job—a 30" Fairey "Battle." That shadow-shading on her ship is the type camouflage the R.A.F. is now using.



Left: Hank Frauenthal, of Freeport, N. Y., turned out this scale replica of the Curtiss Army 0-39. It's completely fitted with forward and rear machine-guns, a sliding hatch, bomb racks, a built-up engine, and wing riding-lights. Can you other fellows build 'em as detailed?



Left: John Martin, left, and Bill Stinson, right, of Spokane, Wash., show their latest model. The ship belongs to John—Bill's cracked-up before this shot was taken. Looks like they had snow early this year in Washington, judging by that petrified cloud dew the fellows are standing in!



Above: From left to right we have Walter Eggert, Ray Beaumont and Mai Kania, who took top honors in the recent Philadelphia gas meet. (Photo by Maycheck.) Left: And now we have Dan Vincent, of Miami, launching his novel self-designed pick-a-back plane. That small craft is released in mid-air automatically, too!

Presenting the

Curtiss-Wright 19-R

RIGHT this way, you F.A. "solid-ifiers," for the snappiest solid-scale job of the month. And it's none other than that gleaming, sleek Curtis-Wright export ship—the 19-R!

Carefully carved from soft stock and enhanced by its sweeping fillets, the completed model proves to be more than just a "stand in." In truth, it's a really accurately scaled replica airplane.

As you readers no doubt know, American aircraft manufacturers are being kept busy day and night filling orders for overseas democracies, as well as for our South American neighbors; for U. S. military aircraft have long manifested themselves to be second to none among the world's fighting air arms. And the Curtiss Company, to say the least, has enviously received the lion's share of foreign orders. While their Buffalo, N. Y., plant is engaged in turning out large quantities of Curtiss "75" Pursuits for the French Government, the St. Louis division is concentrating on filling orders from Cuba, Bolivia, and Ecuador, and several other governments to the south.

The 19-R has been especially designed for countries whose military budgets are limited, and it is the unanimous choice among them as the one ship presenting the logical intermediate step between primary military training and the most modern types of fighting aircraft to which the advancing pilots will be assigned.

Basically, this 450-h.p. Whirlwind ship is a two-place, low-wing, all metal, skin stressed, full cantilever monoplane. It is extremely versatile in its scope of installation possibilities. As an advanced trainer, no special equipment is necessary. And as an attack-fighter, the addition

By Jesse Davidson

Author of "Curtiss XP-40," etc.

of a fixed, synchronized machine gun firing forward, a flexible tail gun mounted in the rear cockpit, a fixed gun concealed within each wheel housing, and a full complement of bomb racks makes this little terror almost a small edition of a "Flying Fortress"!

CARVING THE FUSELAGE

THE size of the model may be determined by the builder. However, three distinct sizes are suggested which are as follows: (1) taken directly from the full

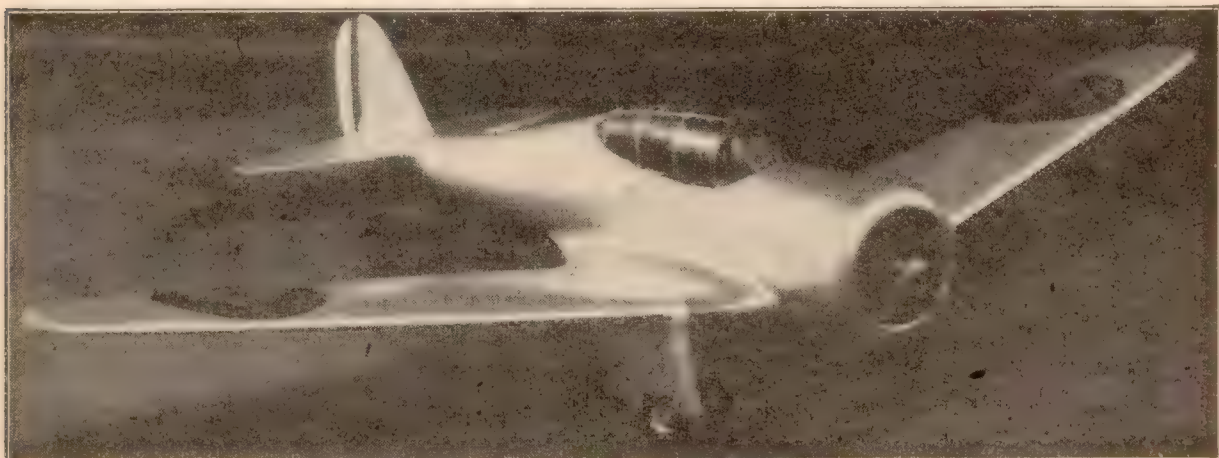
size layout; (2) one and a half times the plan; (3) twice as large. Any of the above mentioned sizes make a very attractive looking replica. But, of course, you can make it any size you wish.

Cut stiff paper templates of top and side views of the fuselage and trace their outlines upon knot-free, soft stock balsa. The entire outline is cut to shape as closely as possible. The portion of the cockpit housing is cut away entirely. And the cockpit itself is hollowed to the necessary depth and cleaned out with a smooth sanding. Upon comple-

tion, its interior is painted either gray or aluminum, and later the stick, rudder pedals, instrument board, and other details are added.

The transparent sliding hatch is built up by curving various lengths of music wire to form the rounded outline. Their ends are embedded into each side of the cockpit and should be held fast until the cement dries. Thin sheets of celluloid, cut to the required lengths, are cemented over these curved frames. It is not necessary, however, to have the entire canopy slide to or fro, due to its small size.

For you "solid" fans this month we present that startling, speedy Curtiss-Wright 19-R. Long a favorite with airmen for its ability to "take the knocks" and still turn in excellent performance, this little ship is just what you'll need for your miniature tarmac. So settle back now, because here comes our pal Jesse Davidson to tell you how to build this popular little trainer-fighter!



Here we see the 19-R in a night scene on some "blacked-out" drome—or so it appears, anyway. Yes, Jesse made such a good job on his replica that she actually seems to be real! And, fellows, you can make your craft just as sleek as this one if you adhere exactly to Balsa Ace Davidson's instructions. Remember, to the letter!

A TOP-NOTCH SOLID BY A TOP-NOTCH DESIGNER!

The front of the engine cowling is partially cut in, as noted, to provide a nine cylinder arrangement. The motor may be made in the usual manner or purchased from the local supply house. The engine, of course, is painted black. And the curved under portion of the motor cowling may be cut to shape from stiff bond paper and cement in place as shown on the plans.

The position for the wing is indicated by the series of dotted lines on Plate 1 at the root of the airfoil section. This portion is carved out and sanded smooth, ready to accommodate the wing.

WING AND EMPENNAGE

MAKE the wing by tracing its top view onto a piece of soft stock cut to the required dimensions. The front view is next to be traced, so that the built-in dihedral angle may be accurately obtained. First cut the dihedral to shape and finish off by cambering the entire wing carefully from root to extreme tip. Invert this panel and, using it as a template, trace the other panel to shape. After both sections have been completed, finish with a smooth sanding and apply two coats of a good wood filler.

The rudder and horizontal stabilizer are cut to shape from soft balsa stock. The stabilizer is made in halves, and upon completion the separate units are cemented onto each side of the fuselage in the position shown on Plate 2. The rudder is cemented in an upright position, and all three parts are braced temporarily to maintain perfect alignment until the cement hardens.

LANDING GEAR

CUT the wheel housings from soft balsa. The upper portions of each are shaped so that they will fit snugly to the underside of the wing. The outer sides at the extreme lower portion of the housings are cut away partially to accommodate the wheels. A close study of the three quarter front view photograph will illustrate very clearly the manner in which the wheel is attached. A small straight pin, cut the necessary length and bent to shape, will serve well as the wheel axles. The tires are painted black.

The tail wheel is of the swiveling type. This may be made by mounting the proper sized wheel on a pin axle, which is inserted quite a distance up into the tail of the fuselage. Thus, swiveling the wheel will not cause it to constantly fall out of its position.

Of course, you will have a much finer job, since it is quite difficult to accurately bend a pin properly to the size you will need, if you purchase a swivel mount at your local dealer. However, by exercising patience, I have found that, even though it is difficult, an accurate swivel can be made if the builder is not in too much of a hurry to complete his model.

Work slowly, so as not to get too great a bend in the pin, and don't try to do the job with wide end pliers. Instead, use a pair of pliers that are wedge shaped, small, and easy to work with.

BILL OF MATERIALS

(All wood is soft balsa)

Two sheets $6\frac{1}{2}$ " by $2\frac{3}{4}$ " by $\frac{3}{8}$ " for wing panels;
Two sheets $2\frac{1}{4}$ " by $1\frac{1}{4}$ " by $\frac{1}{8}$ " for horizontal stabilizer;
Two blocks 2 " by $1\frac{1}{4}$ " by $\frac{1}{2}$ " for wheel housings;
One block 10 " by 2 " by $1\frac{1}{4}$ " for fuselage;
One block 2 " by $\frac{5}{8}$ " by $\frac{5}{8}$ " for auxiliary gas tank (optional);
One sheet 2 " by $2\frac{1}{4}$ " by $3/16$ " for vertical fin;
One propeller, either two or three blader;
One sheet of celluloid for canopy and sliding hatch;
Plastic wood or putty; one set of hard balsa wheels; one tail wheel; aluminum, black, orange, yellow, and green paint; also piano wire, sandpaper, glue, pins, balsa knife or razor blade, and pliers.

ASSEMBLY

AT TACH the wing to the underside of the fuselage with a generous application of cement. Inserting several fair sized pins right through the wing into the body will assist in keeping the glued surfaces flush. Push the pins in so that their heads will be well below the level of the wing surface. In this manner they may be left there permanently and will not mar the appearance of the model.

The addition of the landing gear housings are next. Use cement to fill up all the small cracks and crevices that may be around the joined parts. While the parts are drying, it is best to place the ship on a level keel, as shown on the side view drawing. This will keep the landing gear lined up true. The addition of an auxiliary gas tank is optional. In the event the model builder chooses to carve one, however, it is suspended by two small hooks, one behind the other, and mounted as shown in the drawings on Plates 1 and 2.

SURFACE FILETING

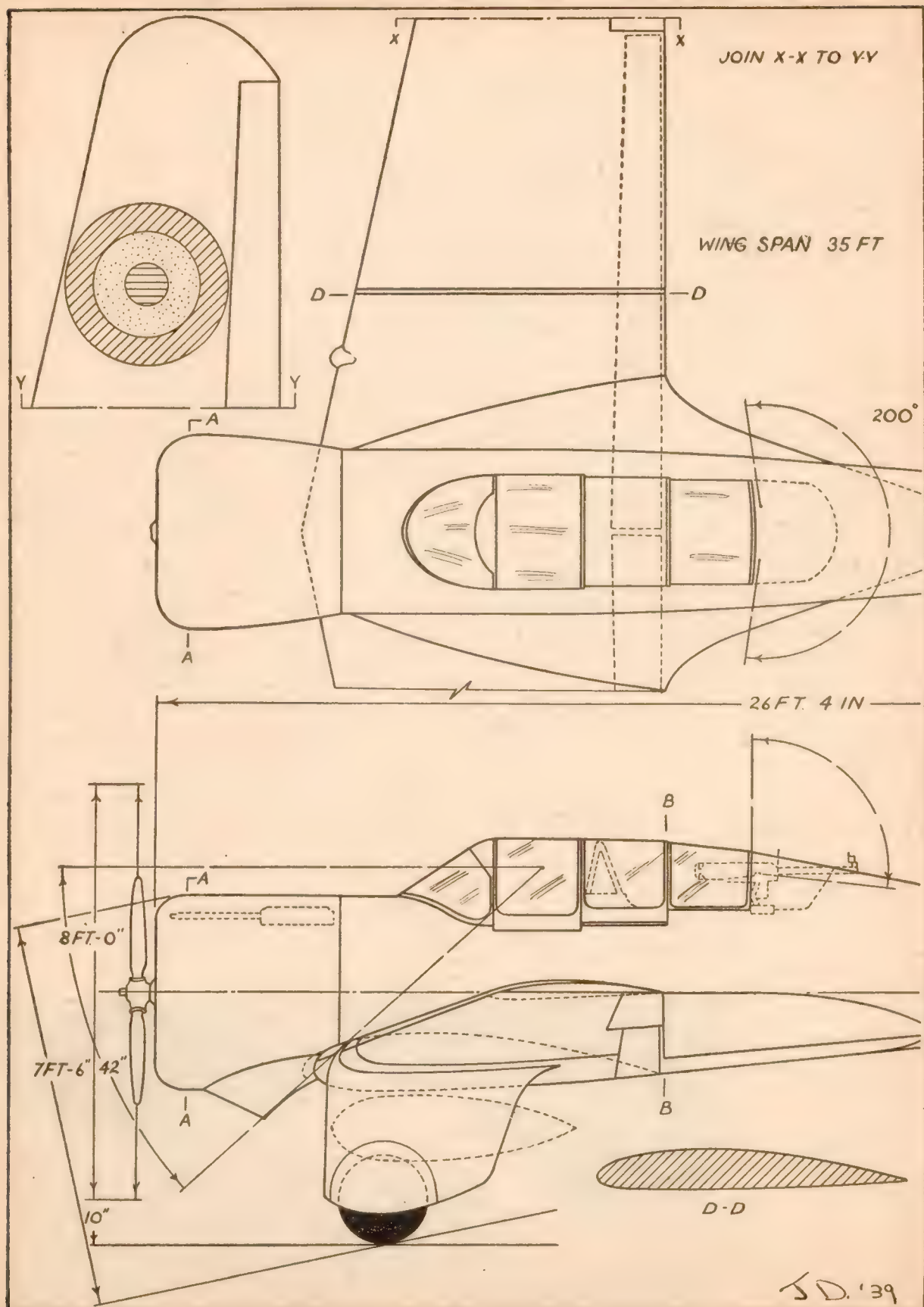
YOU may use either plastic wood or putty to form the fillets. Plastic wood has its advantages, inasmuch as that it becomes an integral part of the wood itself upon hardening and cannot be cracked or chipped

(Continued on page 80)

Now take a gander at this shot, lads, and see if you can find anything wrong. Yes, darn it, the 19-R's boasting Mexican markings instead of Bolivian! But this was done for a reason, boys. Because now you'll be able to make your job to represent the air force of either of the countries! And if you choose Mexico, make the outer triangles on the wings red, then use white for the second one, and green in the center.



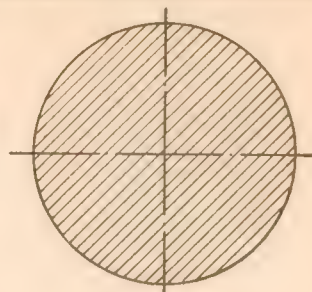
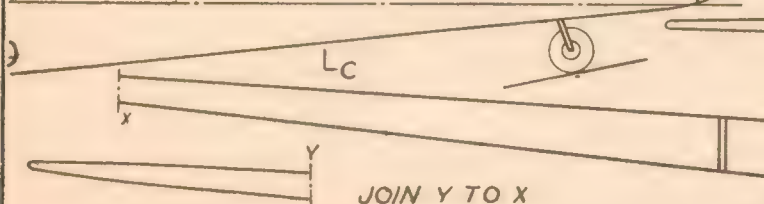
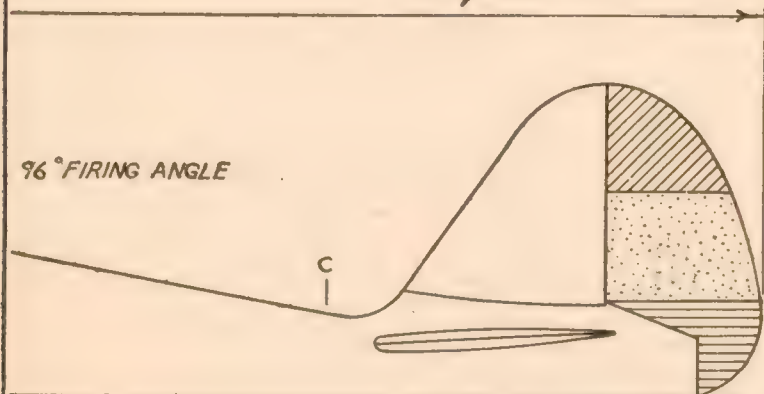
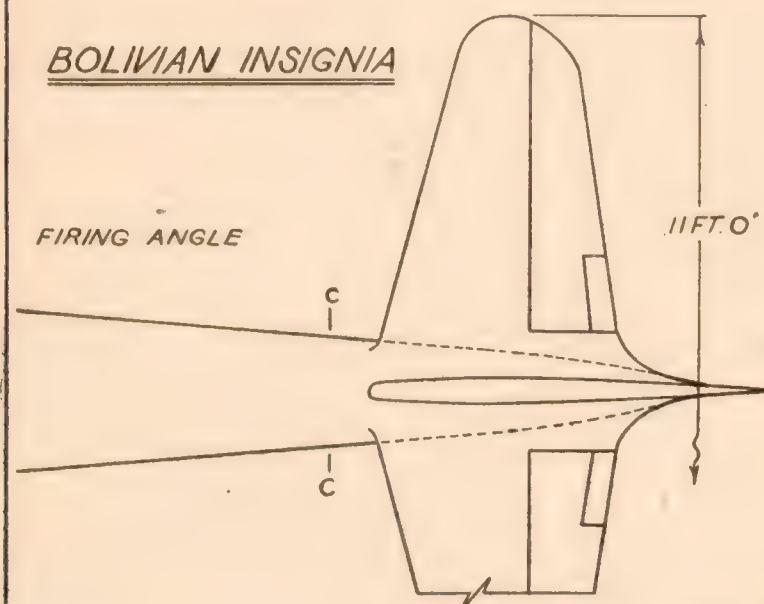
PRESENTING THE CURTISS-WRIGHT 19-R—Plate 1



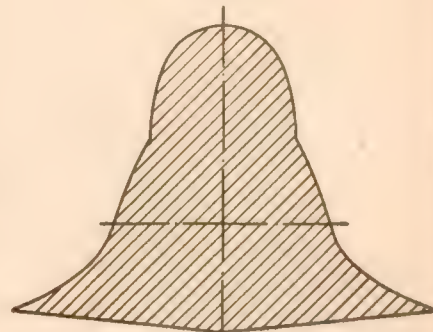
- CURTISS WRIGHT - MODEL 19-R

THIS ADVANCED TRAINER, TYPE 19-R,
IS USED BY THE AIR FORCES OF CUBA,
BOLIVIA AND ECUADOR

BOLIVIAN INSIGNIA



A-A



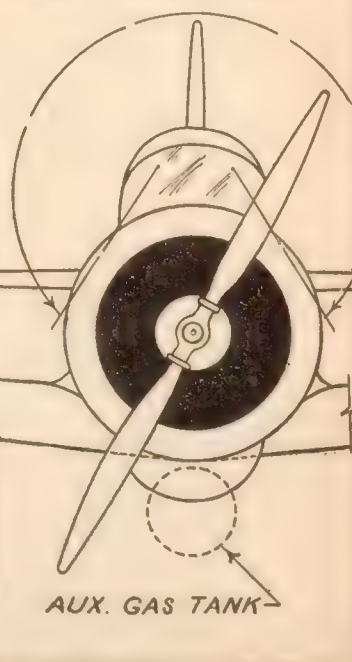
B-B



C-C

FUSELAGE CROSS SECTIONS

300° FIRING ANGLE



News of the Modelers

All model clubs are urged to send us reports of activities for inclusion in this department—advance dope on contests, club activities, and results of meets. Such news should be sent to us as promptly as possible, and advance notice of contests should be in our hands at least six weeks before the tourney. Address letters to Model Editor, FLYING ACES, 67 West 44th St., New York City.

10,000 See New Haven Meet

MORE than 115 contestants flew jobs in the First Annual Connecticut Gas Model Championships held at the New Haven Municipal Airport Oct. 8, and 10,000 spectators watched the boys put their ships through their paces. NAA rules were followed in this tourney, which was the largest ever held in Connecticut.

Winners were as follows:

Class "A": First, J. S. Grege, Danbury, Conn., 1 min., 59.9 sec.; second, H. Clark, Poughkeepsie, N. Y., 1 min., 33.3 sec.; third, J. Slee, Poughkeepsie, 1 min., 30.2 sec.; fourth, Louis Garami, Woodside, N. Y., 1 min., 30.1 sec.; fifth, M. Slee, Poughkeepsie, 1 min., 11.3 sec.

Class "B" & "C": First, J. Toubl, Noroton, Conn., 2 min., 33.3 sec.; second, J. Toubl, Noroton, 2 min., 7.1 sec.; third, W. A. Westcott, Riverside, Conn., 1 min., 43.1 sec.; fourth, H. Goauette, Hartford, 1 min., 17.2 sec.; fifth, M. Vetrano, Manchester, Conn., 1 min., 13.4 sec.

Weather Doesn't Stop Smith

"THE weather was lousy and the air in the hangar was cold and drafty," says Jesse Bieberman, describing the Indoor Record Trials at Akron October 1. Despite this, however, several good times were turned in that might rate new records. Matthew Smith, Washington, monop-

lized the good hops. He did 8 min., 11.3 sec., in the Class "A" stick ROG trial and 10 min., 52.6 sec. in the Class "C" cabin fuselage ROG test.

Philly Gas Meet Results

LIGHT breezes and a clear day aided the success of the Quaker City Gas Model Airplane Association's Third Invitation Meet held September 9 in Philadelphia. The Brooklyn Skyscrapers camped on the airport overnight. Southern Connecticut Gas Model Clubsters of Noroton drove all night and arrived with the sun. And the Aero Craftsmen Club of Baltimore was on hand 25 strong. Results follow:

Class "A": First, W. Eggert, Philadelphia, 1 min., 23.8 sec.; second, J. Findra, New Brunswick, N. J., 1 min., 4.6 sec.; third, Nat Polk, New York, 1 min., 1 sec. Class "B": First, M. Kania, Philadelphia, 4 min., 48.6 sec.; second, Gladys Andes, Pottstown, Pa., 2 min., 18.8 sec.; third, J. Mastrovitch, Fords, N. J., 2 min., 14.7 sec. Class "C": First, R. Beaumont, Philadelphia, 4 min., 8.3 sec.; second, C. Schlight, Philadelphia, 4 min., 6.5 sec.; third, R. Scott, Laurel Springs, N. J., 3 min., 31 sec. Spectacular flight: First, W. Beck, Philadelphia; second, Sal Taibi, Brooklyn; third, A. Koveleski, Moosic, Pa.

Fine Flights at Indianapolis

TIMES were good in the First Annual Junior Chamber of Commerce Gas Model Contest held on September 24 at Indianapolis. The flights ranged from 9 min., 38 sec., to 2 min., 49 sec. of 45 place. Top five high placers were:

First, Robert Brown, Indianapolis, 9 min., 38 sec.; second, Abner Crosby, Fort Wayne, 8 min., 7.9 sec.; third, K. Frandsen, Anderson, 7 min., 47 sec.; fourth, Robert Brittenbach, Terre Haute, 6 min., 55 sec.; fifth, Harold Tremps, Anderson, 6 min., 33 sec.

Jones Takes Title!

BY PLACING in all three events, Roger Jones, of Baton Rouge, La., was proclaimed the outstanding

modeler of the Second Annual Gulf State Model Airplane Meet, which was held in New Orleans on August 26-27.

The second day of the tourney was bright and warm, with plenty of thermals and just the right amount of breeze for gas jobs. Flights began at 8 a.m. When "time out for lunch" was called at noon, 45 models were lined up behind four runways, all set to fly in the afternoon session. This jam later necessitated the use of six runways.

Complete results follow:

Gas: Open—First, Kenric Hunter, Mobile, Ala., 2 min., 11 sec. Senior—First, Ray Hubbard, Dallas, Tex., 3 min., 12 sec.; second, Ray Mathews, Dallas, Tex., 2 min., 24 sec.; third, Robert Basnett, 2 min., 23 sec.; fourth, W. Beherne, 1 min., 59 sec.; fifth, C.W. Briggs, Baton Rouge, 1 min., 51 sec.

Flying Scale: First, Roger Jones, Baton Rouge; second, Osce Jones, Baton Rouge; third, Pos Adams, Mobile; fourth, Eugene Timms, Baton Rouge; fifth, F. Vogtner, New Orleans.

Endurance: First, Asbun Wilds, Port Arthur, Tex., 2 min., 6 sec.; second, C.F. Munger, Mobile, 2 min., 4 sec.; third, Carlos Munger, Mobile, 1 min., 40 sec.; fourth, Jack Dodge, Gulfport, Miss., 1 min., 8 sec.; fifth, Roger Jones, Baton Rouge, 54.2 sec.

Morrow Tops in Texas

SPURGEON MORROW, of Fort Worth, copped three first places and one second place out of the five events conducted in the gas model airplane contest held in Sweetwater, Texas, on Sept. 24. Other winners:

Endurance: Class "C"—First, Spurgeon Morrow, 9 min., 36.8 sec.; second, James Peterson, Fort Worth, 7 min., 18.9 sec.; third, Joe Brewer, Lubbock, 6 min., 11.9 sec.; fourth, George De Frese, Dallas; fifth, W.L. Horton, Fort Worth. Class "B"—Cris Pratas, Lubbock.

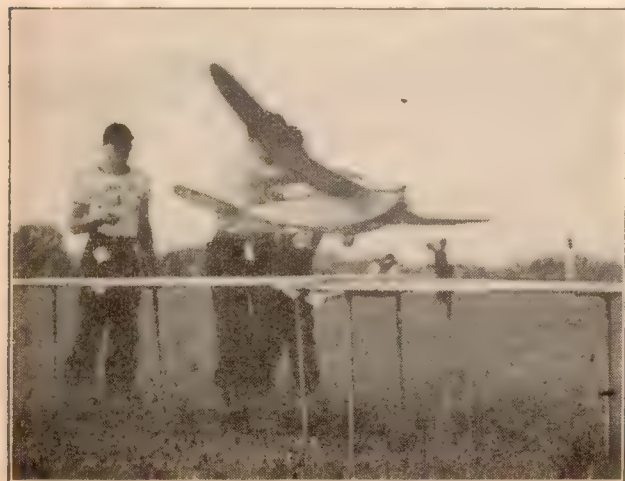
Appearance—First, Spurgeon Morrow; second, W. L. Horton, Fort Worth. "Jimmy Allen" Race—First Spurgeon Morrow. Stunt Flight—First, M. L. Bird, Abilene; second, Spurgeon Morrow.

Mastrovitch Cops Hadley Tourney

JOE MASTROVITCH walked off with the Queen City Gas Model Meet, held October 7 at Hadley Field, by turning in 9 min., 19 sec. Weather conditions were just what modelers pray for. Other winners in the tourney were Jack Moore, Ray Grafala, Manasquan, N. J., Sam Scherer, Maplewood, N. J.

Rubber Holds Its Own!

IT WAS expected that gasoline-powered craft would score a shut-out over the rubber jobs in the unique Gas. vs. Rubber Model Contest held in Chicago October 8. But the elastic-motored ships came through and copped one of the two events contested. Gasoliner Alvin Anderson,



Heads up! R. Beaumont, of Philadelphia, sends his sturdy one-wheel gas job off the launching platform for a Class "C" fight at the Quaker City Model Airplane Association's Third Invitation Meet held September 9 in Philly. Beaumont took first in the hotly contested event. The stop-watch clicker is Alton. (Photo by Maycheck.)

Chicago, scored a victory for the power buggy school in the Open tourney by turning in 3 min., 1.1 sec. But Joe Limosani, also of the Windy City, roared through with his rubber job to take first place in the Jr.-Sr. event with 2 min., 39.3 sec., and thus even the score.

Rain Irks Iowans

TWICE the Iowa Falls, Iowa, gas contest, scheduled originally for August 6, was rained out. But the 24th was a beautiful day, with good thermals and not too much wind—so at last the tourney was run off. The list of winners follows:

Open: First, Waco Ladwig, Waterloo; second, Ted Meyers, Des Moines; third, V. G. Jacobs, Ames. Senior: First, Clifford Hodge, Des Moines; second, Maynard Ray, Ames; third, Jack Russell, Des Moines. Junior: First, Richard Clement, Marshalltown; second, Jim Boehmler, Hampton; third, Bill Boehmler, Hampton.

Skyscrapers Vie

OVER 100 entrants contested for honors in the First Annual Skyscrapers Gas Model Contest at Creedmore, L. I., October 8. A crowd of 5,000 watched the boys compete. Winners:

Class "A": First, Austin Meissner, Garden City, N. Y.; second, George Moro, Garfield, N. J.; third, R. Hooley, Fairlawn, N. J. Class "B": First, Joe Beshanan, Paterson, N. J.; second, James McPheat, Jackson Heights, N. Y.; third, John Farrell, Brooklyn. Class "C": First, Henry Struck, Jackson Heights; second, John Zedwitz, Bellrose; third, Ed Tanis, Paterson.

Goldberg On Tour

CARL GOLDBERG, nationally famous designer of gas model airplanes, is in the midst of a country-wide tour on behalf of the Comet Model Airplane & Supply Company.

On this jaunt, Carl stops in key cities for personal appearances in dealers' stores, where he gives model building advice to balsa fans. He also gives a highly interesting demonstration of model airplane adjusting and flying technique.

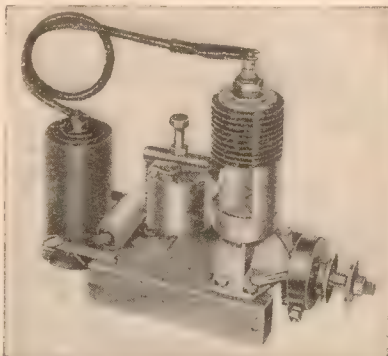
In addition, Goldberg shows movies which illustrate methods of building gas jobs. There are also scenes from the recent Nationals. It was at the Nationals that Comet gas models, designed by Carl Goldberg, won three first places.

That New "Ranger" Engine

WORD recently came to our attention regarding one of the newest gas model engines on the market. With a rated horse-power of 1/6, this

power-plant stacks-up favorably against those now in use by modelers. Information and specifications follow:

The company states that a great deal of thought was devoted to the choice of the alloys best suited to the particular requirements of the various parts of the engine. For instance, the piston is turned from special nickel steel alloy. It is then hardened, ground, and lapped to a perfect fit with the cylinder. The crankcase is made of light aluminum alloy with



Here's the new 1/6-h.p. "Ranger" gas-model engine that recently hit the market.

a smooth finish. The main bearing is of high speed bronze, with pressure lubrication through the oil-well hole to the bearing. The cylinder is made of alloy steel with the cooling fins machined from solid bar stock. Deeply finned, the cylinder presents the maximum cooling area. Manifolds are welded on.

A one piece special alloy steel crankshaft is heat treated prior to finishing. The connecting rod is also of special alloy steel. Tungsten points are used in the timer, which is fully enclosed and adjustable. The engine draws its "juice" through a Smith coil and condenser.

During the 15 min. run-in test period that every engine goes through before leaving the factory, a gas and oil mixture of four parts of high octane gasoline to one part of S.A.E. 50 oil is used. For use of modelers,

however, it is suggested that this mixture be increased to five parts gas to one part oil. Upright or inverted, incidentally, the *Ranger* functions equally well.

General specifications: Horsepower 1/6th; bare engine weight 3 3/8 oz.; bore .690 in.; stroke .782 in.; r.p.m. 500 to 10,000.

Young Leads at Lansing

FRANK YOUNG, Lansing, copped first in Class "B" with 6 min., 25.6 sec., and second in Class "A" with 3 min., 46 sec., at the gas model meet held in Detroit October 2. Other winners: Class "A"—First, Joe Dallaire, Detroit, 17 min., 2 sec. Class "B"—Second, Jack Douillard, Algonac, 4 min., 58.2 sec.; third, John Hoover, Flint, 3 min., 50.2 sec. Class "C"—First, George Lozey, Grand Rapids, 9 min., 10.5 sec.; second, Howard Festman, Detroit, 5 min., 38.7 sec.; third, Evan Webb, Keego Harbor, 3 min., 16.1 sec.

California Scores

THE Northern California Championship Model Airplane Flying Contest, sponsored by Oakland's Junior Chamber of Commerce, was run off September 24 at Livermore Airport. Results:

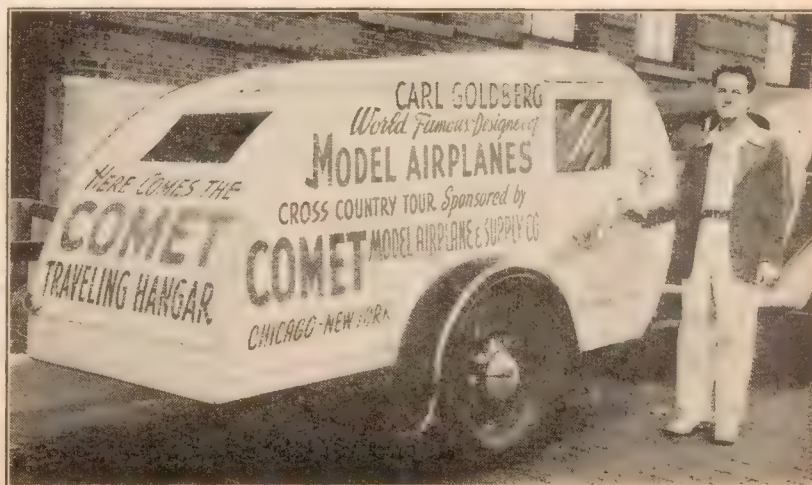
Wakefield: First, Mike Demos, 3 min., 19.8 sec.; second, Gordon Peterson, 2 min., 38 sec.; third, Dave Lloyd, 2 min., 31.4 sec. Gas: First, Dick Schumacher; second, Roland Smith; third, Harris Chittendon.

New Records Announced

THE NAA recently announced a complete list of official national model aircraft records—three-flight averages. They are:

Indoor: Stick, H. L., Class "C"—Senior; Charles Kaman, Washington, 10 min., 15 sec.; Open, Jean S. Chadwick, Syracuse, 9 min., 57.9 sec.; Open, Curtiss Janke, Sheboygan, Wisc., 18 min., 51.7 sec. ROG, Class "A"—Senior, Matthew S. Smith, Washington, 8 min., 28.3 sec. Glider, H.L., Class "A"—Senior, Matthew

(Continued on page 64)



Right: Carl Goldberg, nationally famous gas job designer, is seen here standing next to the trailer that he's now taking all over the country on his tour for the Comet Model Airplane & Supply Company. Try to meet Carl and hear his swell talk when he stops in your town.

Try this

Bell XP-39 Fighter

War or no war, we replica modelers still go for a sleek stick. And here's a little balsa baby that fills that bill with top-notch, high-climbing flights. What's more, you can completely fabricate this flyer in less than an hour's time! So if you want to add the Army's newest fighter to your scale tarmac, gather around while Herb Weiss tells you how.

HERE'S a flying profile model of the new Bell super-ship—a job that you can whittle out in short order. And there are no complicated formers in this miniature; all you've got to do is cut out the parts from sheet balsa, cement the wings and tail in place, add the landing gear and prop, and then with a couple of coats of dope she'll be finished!

Of course, we don't have to tell you about the real ship, because every aero-minded fellow has heard of that radically different Bell XP-39. Yes, all of the lads are talking about its sleek lines, its powerful Allison engine, which is placed in the fuselage behind the pilot's bucket seat, and its retractable tricycle landing gear. And as for speed, some figure that she does anything from 400 to 450 m.p.h. What's *your* guess?

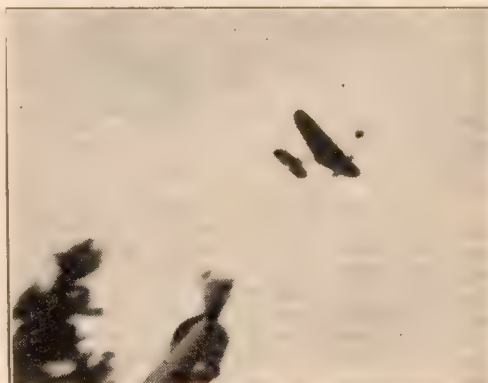
All of that's well and good, but let's forget about the Army job and go to work on the replica version. All set? Okay, here we go—

FUSELAGE AND WINGS

FIRST OFF, note that our model is a silhouette ship. The fuselage, therefore, is constructed of sheet balsa. To begin with, cut the body to outline shape from a sheet of 1/16" balsa. Then sand all of the surfaces to a smooth finish, rounding the corners off slightly to give

By Herb Weiss

Designer of "Jumping Jeepers' Helicopter," etc.



Going up! Yes, in this shot we see the XP-39 headin' for altitude just like the real Army speedster.

the ship a better appearance.

Trace the wing outline onto a sheet of 1/32" thick balsa, carve to shape, and then invert the section for the opposite panel. Sand these sections to a smooth finish, removing all irregularities and rough portions.

Now make the tail surfaces. They are formed in the same fashion as the wings and fuselage, and are cemented in position as shown on the plans.

Movable ailerons, elevators, and rudder are optional. They make the model a little more complicated, but will aid the builder to experiment with different control settings. And in case you decide to make these sections workable, use either wire or sheet aluminum for the hinges.

Give all of the parts two coats of silver dope, sanding lightly between coats. And be sure to thin the dope before using, so as not to warp the parts.

TO ASSEMBLE THE CRAFT

PAIN'T the insignia on the wings and rudder. They're red, white, and blue, of course, with the vertical rudder stripe blue. Add the celluloid windshield and carefully mark the hatch openings with India ink or black paint. Then put the fuselage aside for a few moments to allow the paint or ink to dry thoroughly.

Cement the tail surfaces and the wing halves to the fuselage. Add the wing ribs, and be sure to pin them securely in place while the glue is drying. Carve two air scoops, as shown on the plans, and cement them in position aft of the cockpit. And then attach the landing gear.

Carve a prop from hard balsa—or use the one that you've still got on hand from your last stick job—and make a spinner to fit it. Now your model's finished. Quick work, what?

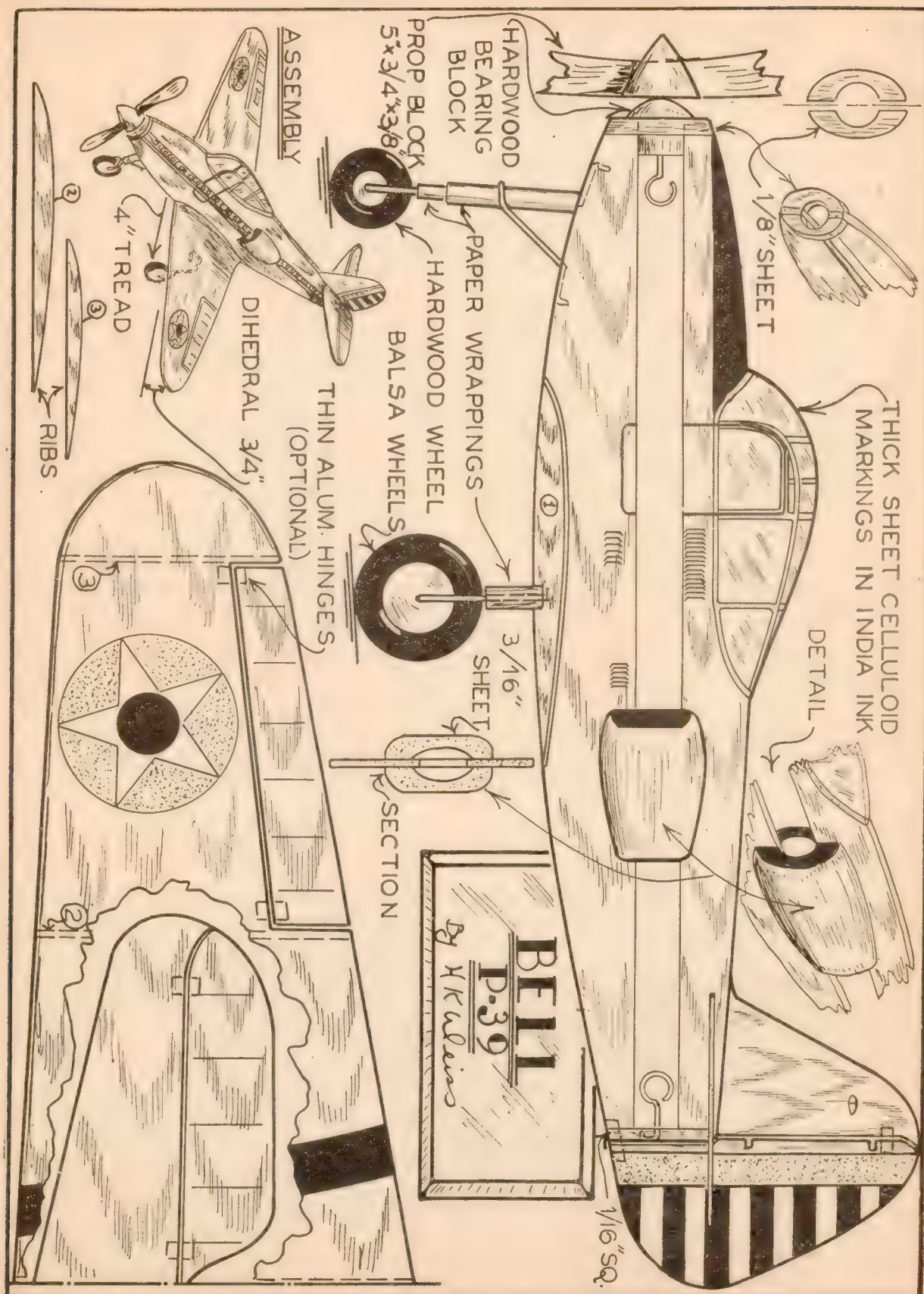
FLYING THE MODEL

THOUGH your ship will fly consistently in a slight breeze, a dead calm is best for testing. Glide the model from shoulder level, (Continued on page 80)



Left: No, this isn't Herb Weiss—he was behind the camera when this photo was snapped. But this shot shows how small our XP-39 profile model is, anyway. And don't let the small size of the craft fool you. Plenty of good things come in small packages, you know.

HERE'S THE BELL XP-39 FIGHTER



"Skyrocket" Gas Job

A FIVE FOOT CONTEST DANDY

"I want a gas model that's both a good-looker and a top-notch flyer," writes one of our model fans. "And it must be a tourney taker, too." Wow! We thought that was going to be a big order to fill—because both beauty and performance don't usually come in the same package. But when we showed that letter to Larry Eisinger he said that he had just the craft we were looking for—a beaut that has copped several competitions. So if you're one of those fellows who's searched in vain for such a gas job, gather around and follow Larry's instructions—



SLOWLY but surely, since the appearance of the 20 second motor run rule, the average span of gas models has been decreasing and the power increasing. The reason lies in the fact that most modelers want altitude in a hurry. And as you will

three spars that stand the strain of high climbing action. The dihedral, though it may seem large, is necessary since a 1/5 h.p. motor can twist a small model like ours into many peculiar positions. So we got rid of this cockeyed characteristic by using plenty of dihedral.

And now that you have a vague idea of what the "Skyrocket" is like let's start with the actual construction.

MAKING THE BODY

THE FUSELAGE of the "Skyrocket" is elliptical and is made in the "backbone and bulkhead" fashion. It is advisable to study the plans carefully before going into the actual work to get a clear conception of the type of construction used.

To begin the actual work, obtain as a "backbone" a soft piece of 1/4" sq. balsa. Mark clearly the positions where the various bulkheads should be situated before carving the formers. Note that only half of each bulkhead is drawn, so trace the other half.

The first two formers are cut from 1/8" birch plywood, while the rest are made from 3/32" sheet medium balsa. After all the bulkheads are cut out, glue each in its respective position and proceed with the cementing of the stringers. Note, incidentally, that the semi-round stringers are cemented in the formers to prevent the covering from touching the bulkheads, thereby reducing skin friction (see Plate 2).

The landing gear is bent from 1/8" steel wire and is

admit, a high climbing model that still glides well is much more spectacular and consequently more in demand than the slow climbing "box car" of a few years back.

But before we go into the actual construction, let us say a few words about the "Skyrocket"—

After tinkering with models from seven to ten feet in wingspan, we have come to the conclusion that the five foot gas model is about the perfect size for contests or just plain ordinary flying. The only real problem is to get a job that is fairly light—8 oz. per sq. ft. wing loading—that will stand the constant strain of high speed, attempted wall-cracking, window smashing, or what have you.

The bulkhead-type construction used in the "Skyrocket" is strong, yet light enough to withstand the severest crackup. And the efficiency gained by the use of an elliptical fuselage cannot be described until you see it with your own eyes.

The high lift airfoil—R. A. F. 32—gives the model potential soaring qualities, yet makes it possible to use

By Larry Eisinger

Author of "Glides Made Easier," etc.



Above: Here, gas fans, we have a swell one-quarter front view of the "Skyrocket." Doesn't she look trim? There's not even so much as a wire or strut to mar her fine lines! That length of wire on the sub-rudder, you know, is the tail skid. It holds the control surfaces just high enough to keep them from being damaged. Right: Here's Larry Eisinger in person! He was putting the "Skyrocket" through her paces when this shot was snapped.



cemented securely to the bulkheads before the nose is planked. The tail section, which is carved from solid balsa, is then glued in place and carved until it fits into the lines of the fuselage.

The wing mount, which is formed from a solid block of balsa, 9" by 2" by 1", is cemented into place and finished by working to the fuselage contour. The top of the wing mount should be beveled so that the wing will fit snugly in place. The 1/4" dia. dowels which are cemented to the front and rear of the wing mount makes it possible to stretch rubber bands across the airfoil with great ease.

The placing of batteries is the next problem. Since it's impossible to reach the batteries through the top of the fuselage, a trap door must be made. Plank the section from bulkheads "C" to "D" and then cut out a door. This door will not be discernible if the fit is perfect. To hold in place, two rubber bands from the inside of the fuselage are hooked onto the door. And whenever you want to remove the batteries or repair the wiring system simply pry open the door and unhook the rubber bands—a simple yet efficient procedure.

WING CONSTRUCTION

MAKE THE WING in four sections and then cement the portions together. The two center section panels and the two top panels constitute the entire wing. The ribs are first cut and sanded to exactly the shape shown in the drawing, since a slightly altered rib will produce different performance—usually for the worse.

With the aid of the spar dimension chart, cut the spars from 3/32" medium balsa and cement into their respective places. Now that you have the four sections completed you may proceed with the joining and placement of dihedral. The reinforcement braces shown should be cemented to both sides of every spar to assure the ultimate strength. To be positive that the dihedral angle will remain the same while the cement is drying a few pins inserted through the braces and spars will prevent any moving tendencies.

After the joints are thoroughly dry the entire wing should be sanded and then put aside for covering. It has been found that a wing constructed in this fashion will stand up as well as any wing with a sheet covered leading edge in both strength or efficiency.

TAIL SURFACES

CUT the spars from 3/32" sheet balsa. To determine the actual size of these members, measure the cross section of the ribs and cut accordingly. After the two sections are completed join them in the same manner as the wing, but be sure to have 1" dihedral on each tip of the sta-

Bill of Materials

(Complete plans on following page)

Twenty strips 1/4" by 1/8" by 36" for stringers;
Twelve sheets 3/32" by 2" by 36" for wing spars, bulkheads, and wing ribs;
Ten strips 3/8" by 1/8" by 36" for nose planking;
Four strips 1/4" by 2" by 36" for wing backbone and leading edge;
Two strips 1/4" by 2" by 36" for trailing edge, sub rudder, and wing tips;
Two strips 1/16" by 2" by 36" for stabilizer and rudder ribs;
One block 18" by 2" by 1" for wing mount and tail;
One strip 3/16" by 3/16" by 36" for stabilizer leading edge;
One pint of cement, one pint of dope, 6' length of 1/8" steel wire, four sheets of bamboo paper, one battery box, one pair of 3 1/2" air wheels, timer, sandpaper, pins, etc.

bilizer. This tends to make the model more stable.

The rudder is made in much the same manner and cemented to the stabilizer. The sub-rudder, which is carved from 1/4" sheet balsa, is cut so a small trimming tab may be added (see Plate 1). The sub-rudder is then cemented to the fuselage, while the stabilizer should be cemented to the upper section of the tail block.

COVERING THE MODEL

NOW that the construction is all completed, start to work on the covering. Use a fifty-fifty mixture of cement and dope as an adhesive.

The fuselage is covered in sections at a time by cutting narrow strips of paper and cementing to only two stringers

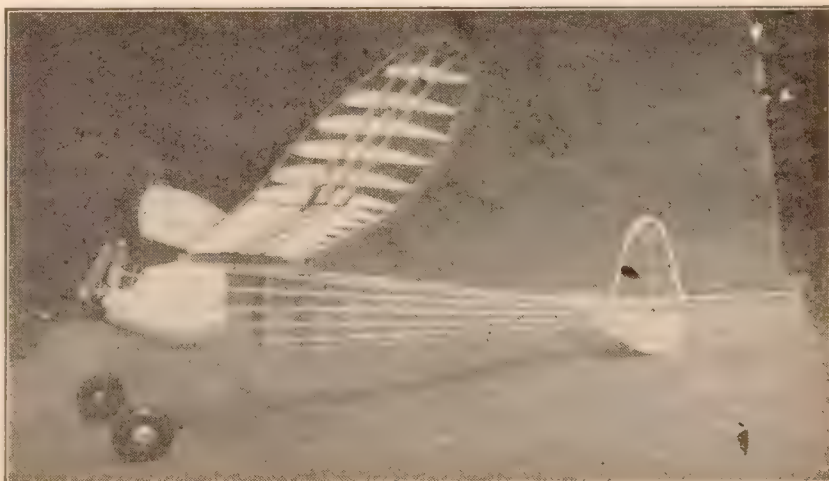
at a time. This may take a little more time, but will result in a smooth, neat-looking covering. Dope the entire fuselage three times with clear dope and then with colored and you'll have a smooth, oil resisting, durable surface. The wing and tail are both covered in sections. The four sections, covered on both sides, will require eight pieces of paper. The tail and rudder are covered in the same manner—that is, one strip of paper per side.

After the complete tail sections are covered a small paper fillet between the rudder and stabilizer will not only cut down disturbance, consequently making the tail more efficient, but will add greatly to the strength of the rudder. To those unfamiliar with the use of these paper fillets let us describe the actual procedure to make one:

First, cut from bamboo paper a streamlined form, about a half inch larger than the center chord of the stabilizer. Make the length-width ratio about 7—which means that the strip of paper will be about one inch wide and seven inches long—and in the shape of a teardrop. Place a drop of glue on the leading edge, between the rudder and stabilizer, and cement the front of the "fillet-to-be" in place. Then draw back the rear of the paper and carefully glue it into position at the rear.

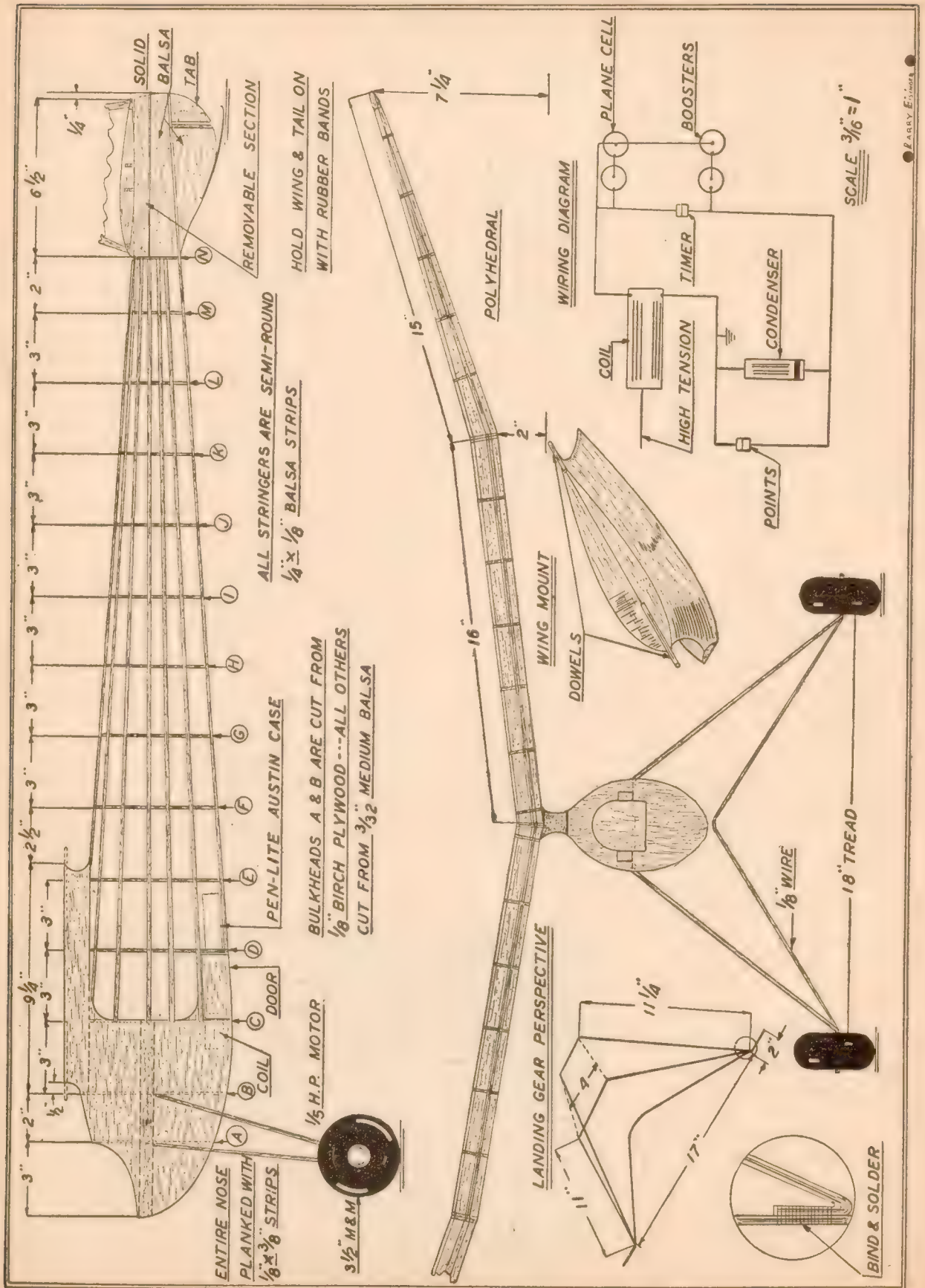
Be sure no wrinkles are present since they will show when the covering has tightened.

(Continued on page 64)

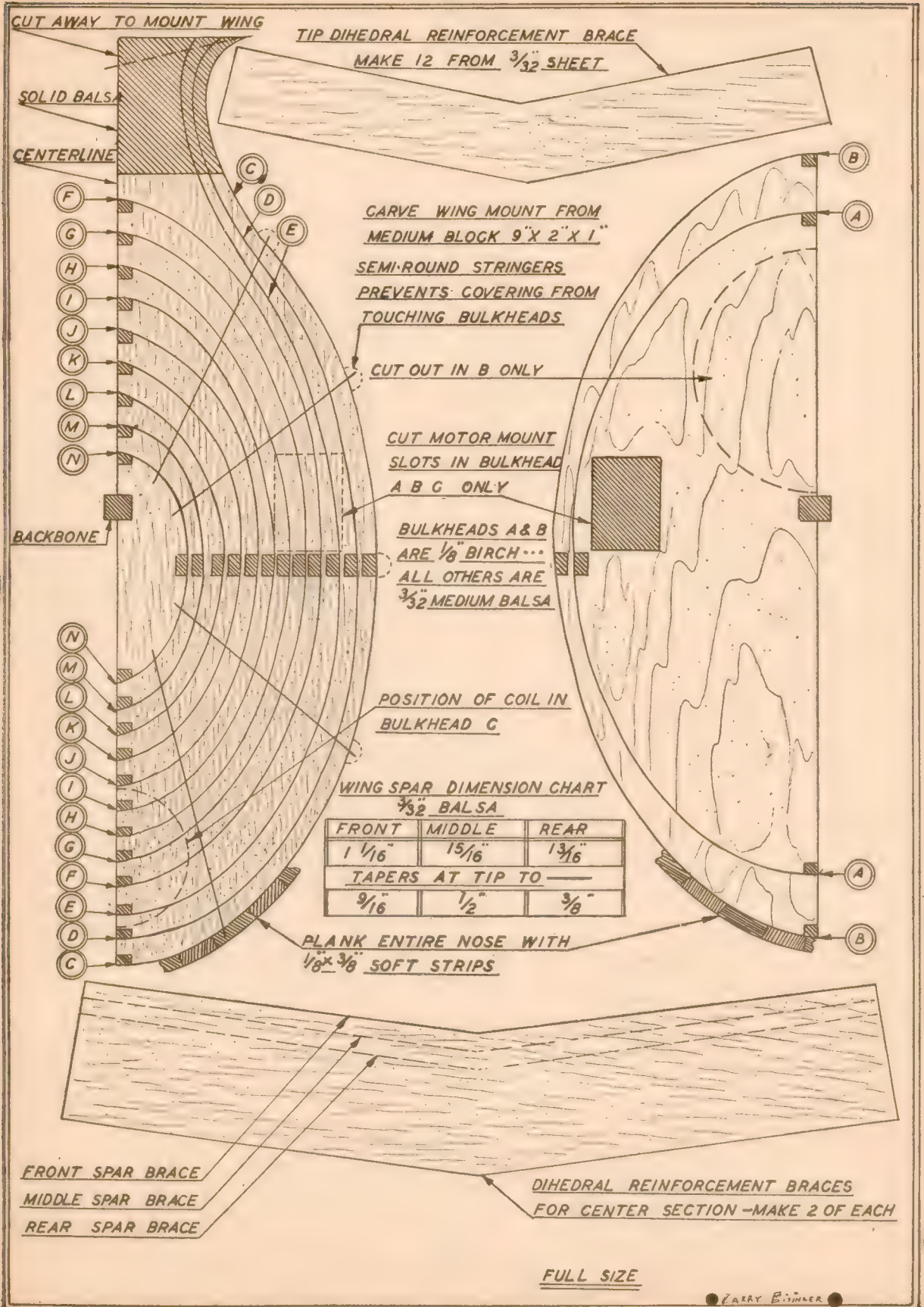


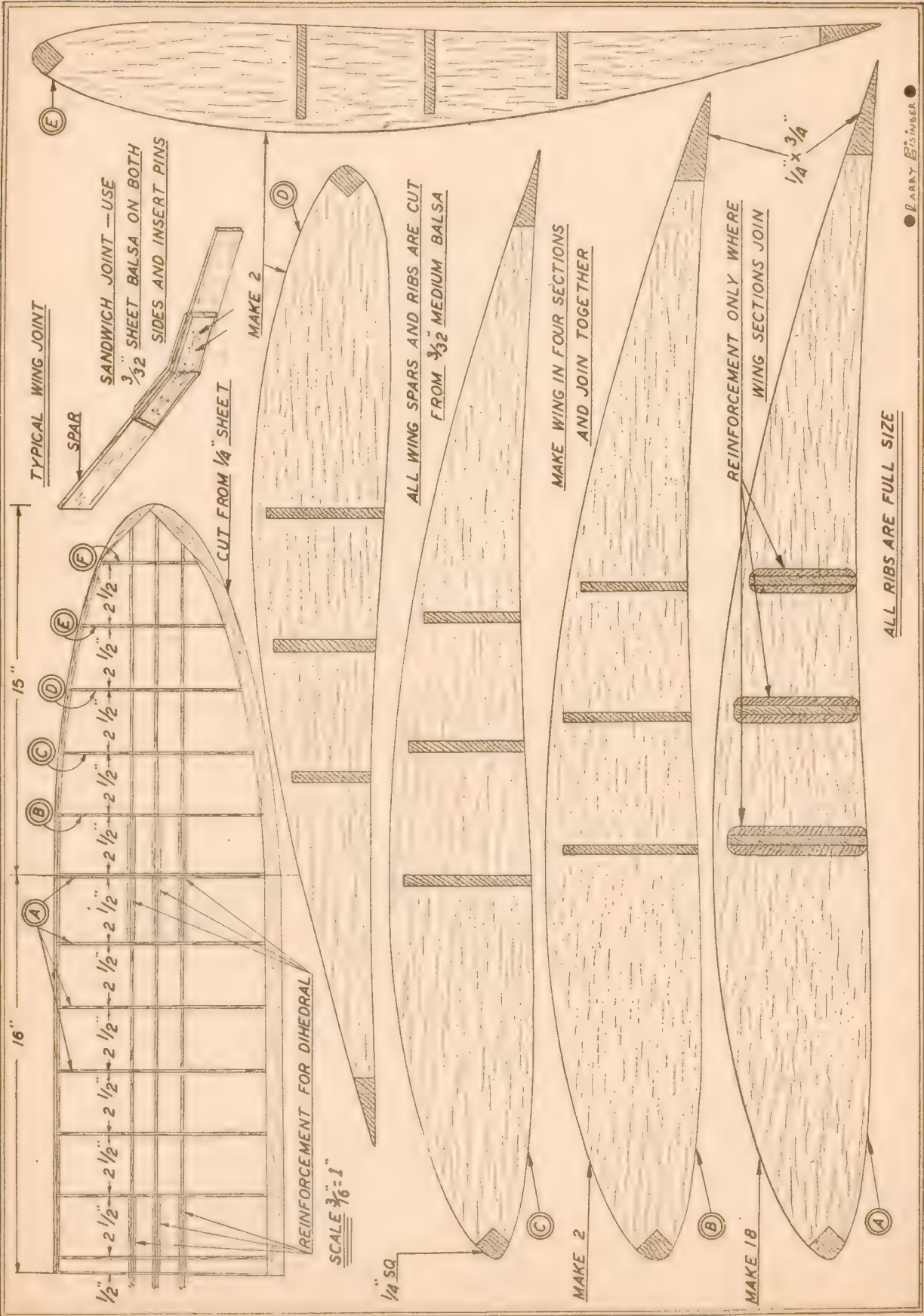
In this pic you can see just how simple the "Skyrocket's" framework is to construct. There are no fancy parts to carve, because all formers and ribs taper nicely. And take a gander at those three spars in the wing. Speaking of strength . . .

BUILD THE "SKYROCKET" GAS JOB—Plate 1



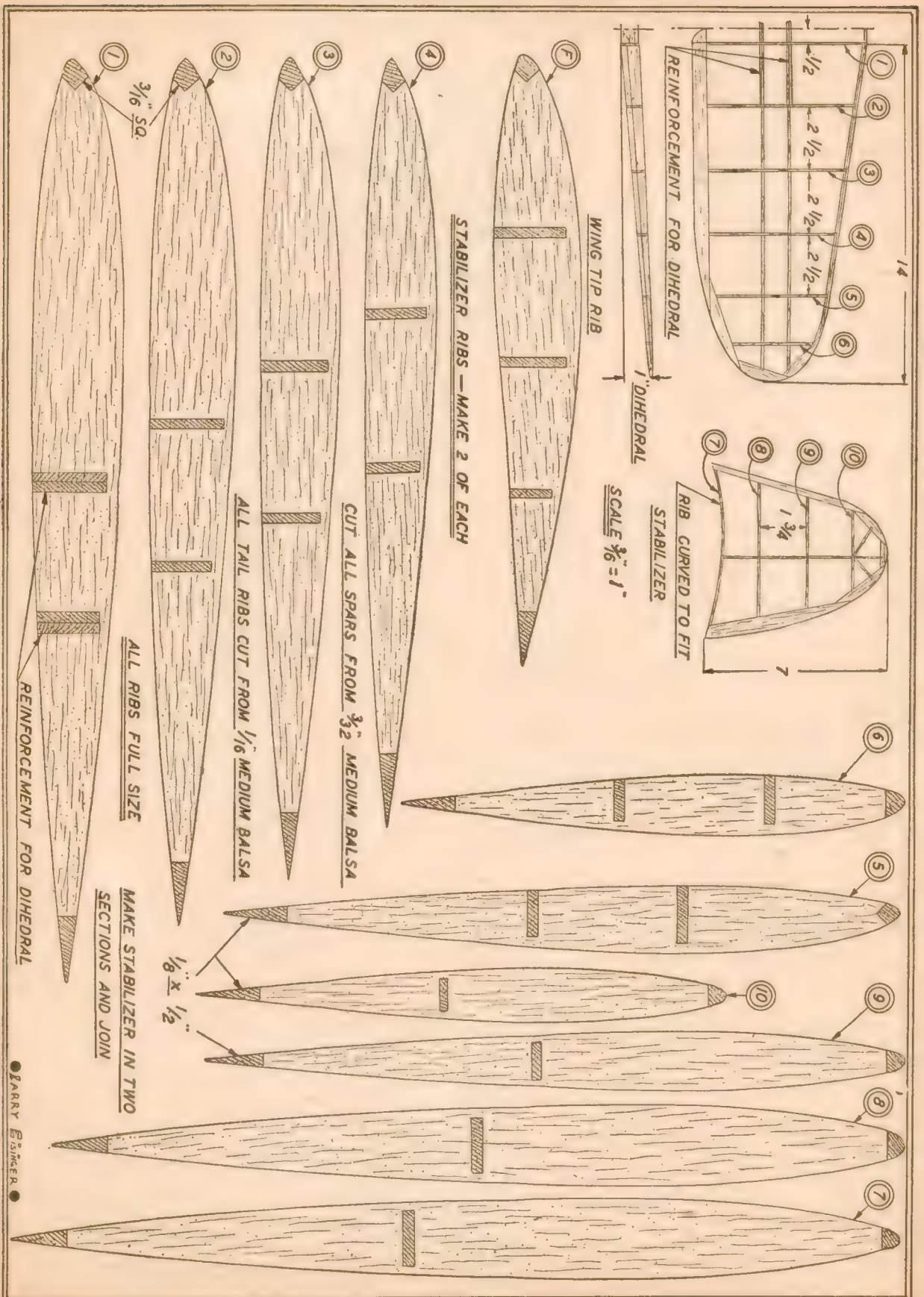
BUILD THE "SKYROCKET" GAS JOB—Plate 2





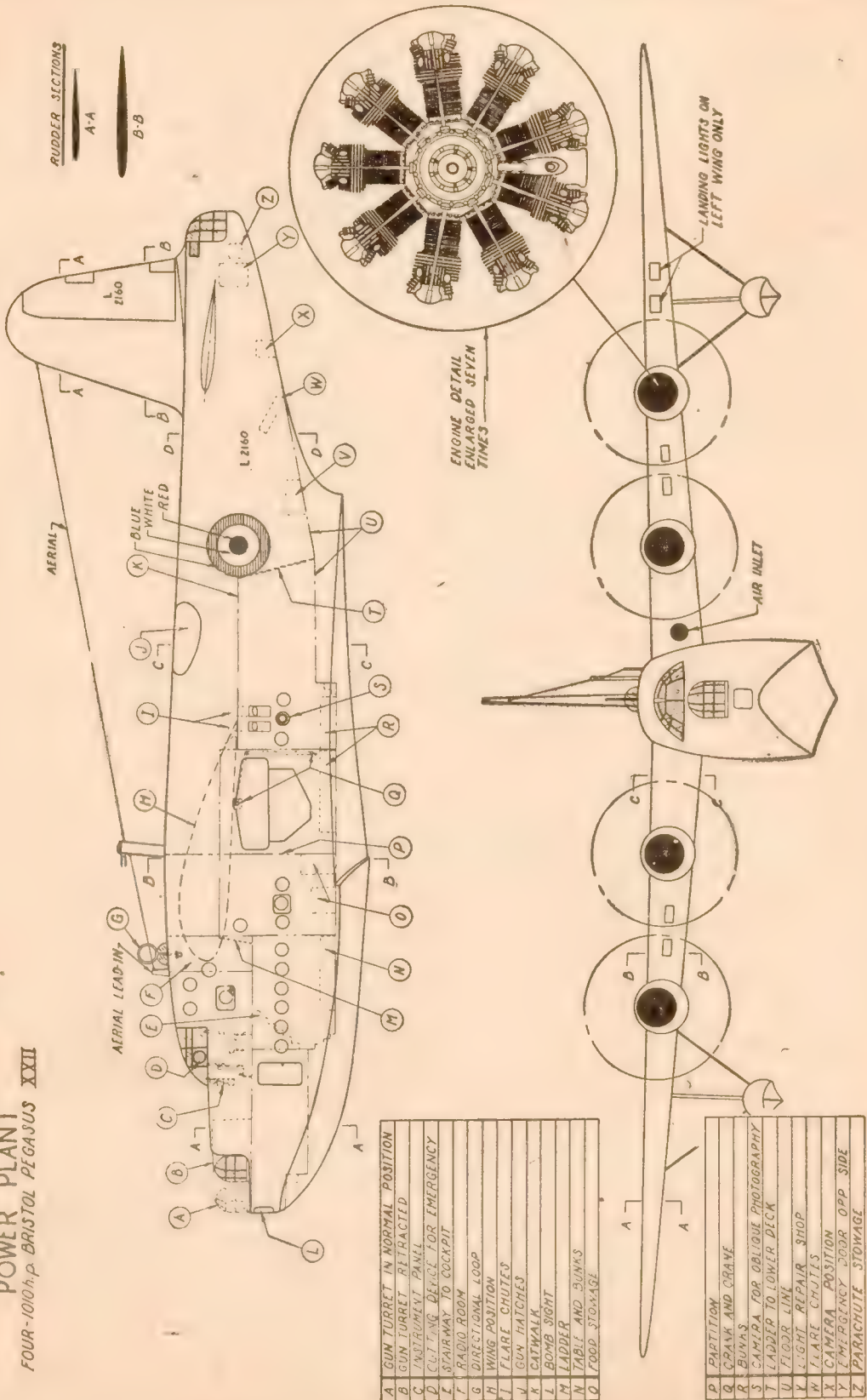
LARRY B. FISHER

BUILD THE "SKYROCKET" GAS JOB—Plate 4



BUNDESLAND I

POWER PLANT
FOUR-1010 h.p. BRISTOL PEGASUS XXII

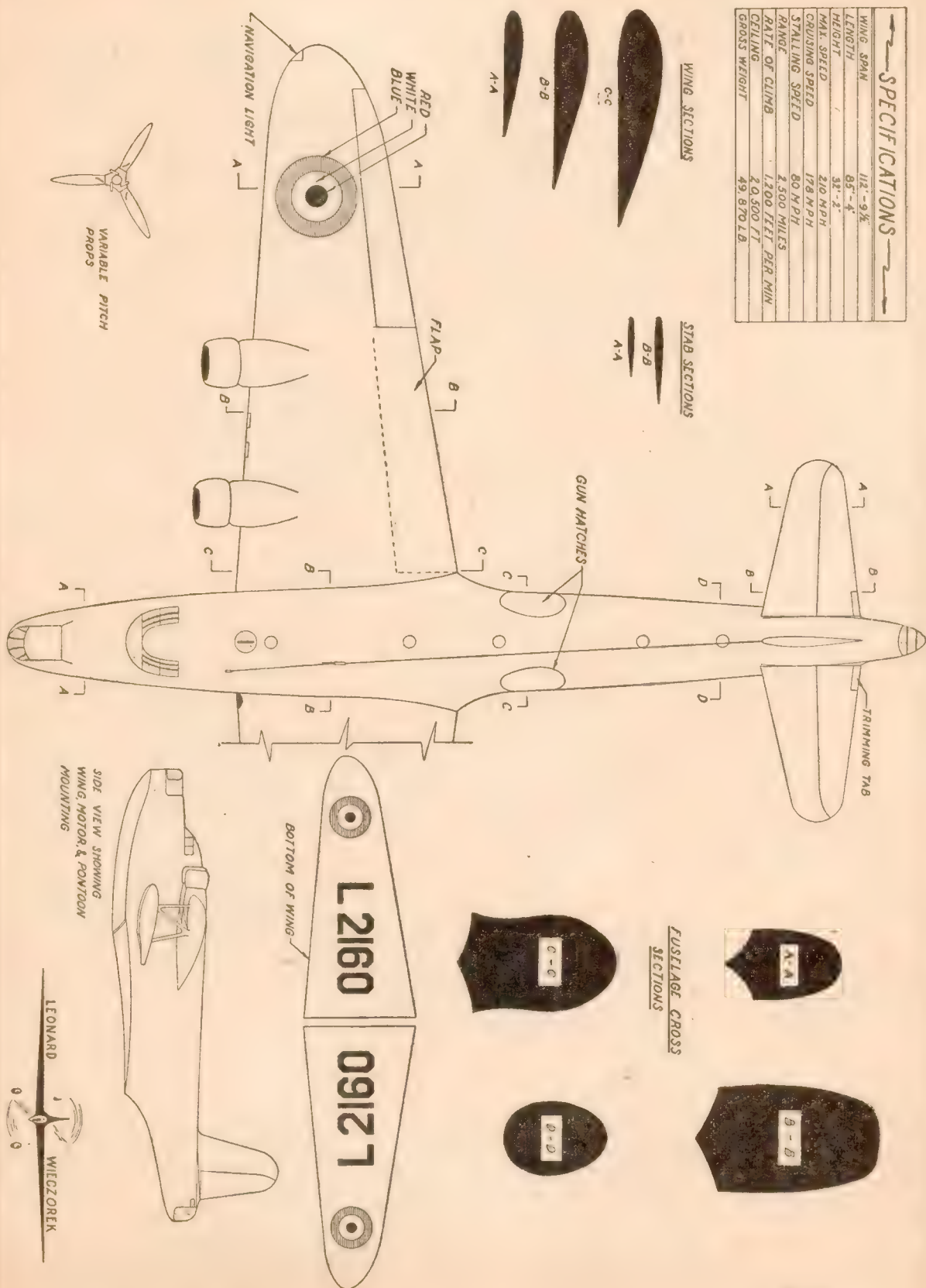
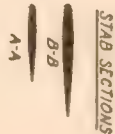
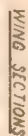


A	GUN TURRET IN NORMAL POSITION
B	GUN TURRET RETRACTED
C	INSTRUMENT PANEL
D	CUTTING DECK FOR EMERGENCY
E	STAIRWAY TO COCKPIT
F	RADIO ROOM
G	DIRECTIONAL LOOP
H	WING POSITION
I	FLARE CHUTES
J	GUN HATCHES
K	CATWALK
L	BOMB SIGHT
M	LADDER AND BUNKS
N	TABLE AND STORAGE

P	PARTITION
Q	CRANK AND CRANE
R	BURNS FOR OBLIQUE PHOTOGRAPHY
S	CAMERA FOR OBLIQUE PHOTOGRAPHY
T	LADDER TO LOWER DECK
U	FLOOR LINE
V	RIGHT REPAIR SHOP
W	FLARE CHUTES
X	CAMERA POSITION
Y	EMERGENCY DOOR OPP SIDE
Z	PARACHUTE STORAGE

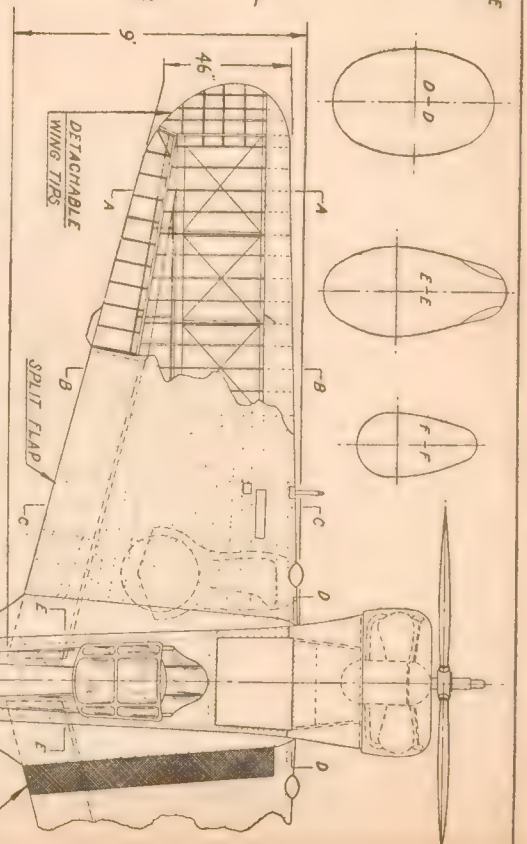
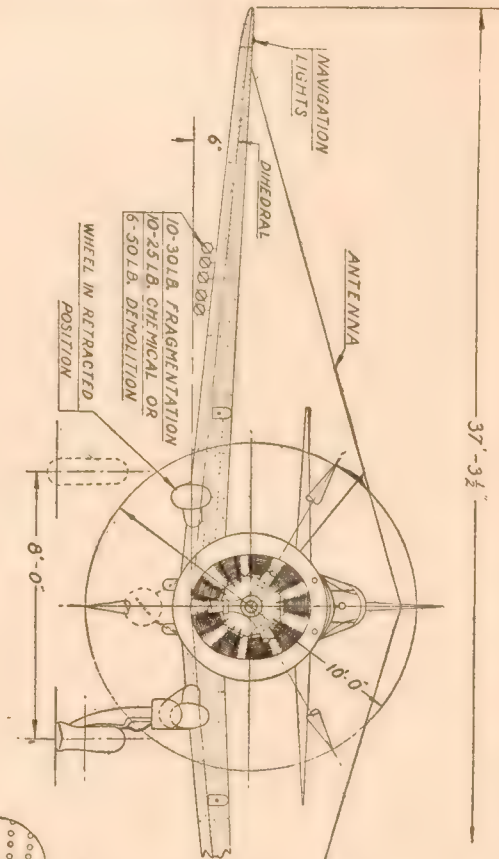
NEW SHORT "SUNDERLAND" PATROL-BOMBER

SPECIFICATIONS	
WING SPAN	112'-9 1/2"
LENGTH	85'-4"
HEIGHT	32'-2"
MAX. SPEED	210 MPH
CRUISING SPEED	178 MPH
STALLING SPEED	80 MPH
RANGE	2,500 MILES
RATE OF CLIMB	1,200 FEET PER MIN.
CILING	20,500 FT.
GROSS WEIGHT	49,870 LB.

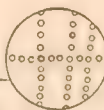
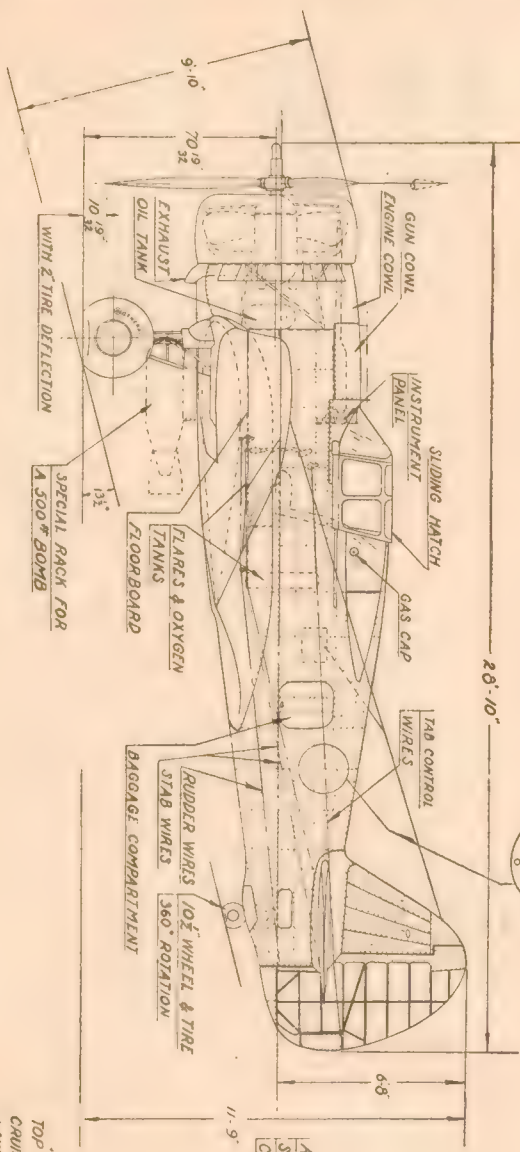


THAT NEW TRI-COLOR FIGHTER—THE HAWK 75-A

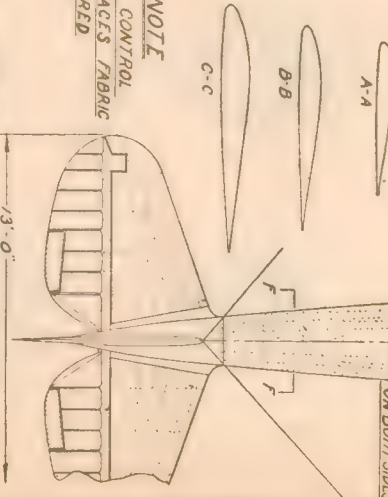
FUSELAGE SECTIONS



28'-10"



AIRFOIL SECTIONS



NOTE
ALL CONTROL SURFACES FABRIC COVERED

Bushnell
HAWK 75-A

TOP SPEED 302 MPH
CRUISING - 260 MPH
LANDING - 68 MPH
CEILING 33,440 FT.

RANGE 677 MI.
MOTOR - WRIGHT CYCLONE
GR-1820-105 900 HP
575 MPH DURING A 9000 FT. DIVE OVER BUFFALO, N.Y.

What Do You Say?

Here's your corner, buzzards, and it's open to all readers who have a model argument they want to get off their respective chests. Make your comments short and snappy, and we'll try to squeeze 'em in.

"HI-CLIMBER" DOES 20 MIN.

Model Editor, FLYING ACES:

I built the "Hi-Climber" from plans in the August F.A. and must say that it's the best ship I ever saw. I made this Earl Stahl model for the National Aero Reserve contest held in Rochester, therefore I had to bring the wing down to 100 sq. in. But even with this change, she never turned in less than 1 min. on any flight. And just before I left for Rochester I got a 17 min., 32 sec., hop out of her.

Bad luck was with me in Rochester, though. For the "Hi-Climber" went out of sight and into the clouds after 20 min.—in a flight which was unofficial. Incidentally, the closest time to my flight was 4 min., 38 sec.

So if you want to keep us modelers satisfied, give us plenty more jobs like the "Hi-Climber." Right now, as a matter of fact, there are no less than five of them in my home town alone!

You also might like to know that I'm working on the "Bebe Special" (July F.A.) and I think she's tops.

LAWRENCE JENNO,
Ogdensburg, N. Y.

THAT "SNOONY" AGAIN!

Model Editor, FLYING ACES:

I just read in "What Do You Say?" a couple of letters concerning Rex Hall's "Snoony Silhouette," plans for which appeared in the May F.A., and I want to side with Manuell Vargas about this great little ship. Snoony

flew swell for Manuell and me. And I think that if Mr. "Irish" had made his job right it would have flown for him, too! So why should he give Rex Hall "the works"?

MATT PINIAR,
Gross Valley, Calif.

PRO AND CON

Model Editor, FLYING ACES:

What do I say? Well, I say 15 cheers for the "Bowlegged Sailor" (July, 1938, F.A.) and 15,000 cheers for the "Teardrop Stick" (March F.A.). But nuts to the "Snoony Silhouette"!

I built the "Snoony" and it just wouldn't fly. I took the landing gear and prop off—and it glided upside down! Yeah, and nuts to the "Jumping Jeppers Helicopter" (June F.A.).

JIMMY CUBBAGE,
Point Marion, Pa.

Editor's note: Among you letter writers, the score is now four to two in favor of "Snoony." Does anybody else want to cast a vote on Rex Hall's creation?

BOUQUETS FROM AUSSIE RETAILER

Model Editor, FLYING ACES:

As secretary of the Model Aeronautical Association of Sydney, Australia, I must say that your model section is the best to be found in any magazine. And as sales manager of a small retail model supply store I have found that F.A. is the most popular mag among the club members. Personally, Phineas and the model section are my meat, so I don't know much about the rest of the book. However, judging from its popularity here, it must be good! Your gas job plans are particularly swell. And the many club members here who have built the ships have been more than satisfied.

L. H. ANNESLEY,
Sydney, Australia

Workbench Tips

TAIL ALIGNMENT MADE EASY

THE MOST common error of assembly jobs is the untrue angle of the horizontal tail member in relation to the wings. In other words, the tail is lop-sided. This is invariably the case when the plane is put together by the spreader-bar-to-elevator method and the wings are then aligned to the elevator.

You see, this is an exceedingly difficult job and is seldom successfully accomplished. A better procedure is as follows:

First of all, join the lower wings to the fuselage, if your plane has more than one wing. Next, take your struts (bamboo preferred) and insert them partway into the body for strength. These cabane struts should be tested for levelness. Using paste instead of cement, now put on the upper wing as usual.

The point is that adjustments can now be made with no detriment to the model. The cabane struts can be patched up with impunity; i.e., they can be sunk in lower or pulled out. At this point the airplane should be inverted on your bench—this procedure making it easier to handle.

With the plane resting on its upper wing and a balsa-block supporting the rear of the fuselage, you can now give your full attention to the cabane strut section—and that is half the battle. After you are satisfied as to its precision, glue firmly and neatly into position and add the necessary details.

It is now a relatively simple matter to align the tail members and the spreader bar. And if you have been reasonably careful, you have a job of which you may well be proud.

—DAVID SPIRO

HERE'S THE "FLIGHT PLAN"

for the

NEXT SMASHING NUMBER OF FLYING ACES



FACT—"Germany's Sky Menace—Where Is it? That's the piercing question Aero Expert Arch Whitehouse asks in this great revealing article. Chock-full of illustrations!

"Talk About Screwed Students—!" A peppy special feature on flight training by your old friend Fred Lord. With swell sketches by Joe Archibald.

Plus a nifty "how to snap it" aero photography article for our many camera fans.

FICTION—Richard Knight and Larry Doyle in a dramatic new war-sky mystery novelet.

Tug Hardwick and Beansie Bishop fly smack into a South Sea raider riddle.

Also "Fright Leader"—the latest rollicking Phineas yarn.

MODEL BUILDING—Special: The Champion Indoor Class "B" stick job—winner of our F.A. Trophy at the Nationals.

A top-notch Curtiss XP-42 low-wing fighter flying model.

And a striking gas job version of the Focke-Wulf FW-56.

In February FLYING ACES



On Sale December 27th (Canada One Week Later)

Death Flies the Maginot Line

(Continued from page 6)

They were within half a block of the Crillon, adjoining the embassy, when a car drew up behind them. Knight turned quickly, his hand inside his coat. Then he recognized the plump face of the man at the wheel.

"Get in, both of you," Rodman said hurriedly. He started the car almost before the door was closed. "I'll drive down a dark street where we can talk unobserved. You men mustn't be linked with the Embassy in the slightest way."

"What's the reason for all this heavy secrecy?" said Knight, annoyed. "Our mission's not so hush-hush that we can't even go into our own embassy."

"It wasn't originally—but it is now," said the Air Corps captain. "By tomorrow noon, you two will be pilots in the French Air Service."

CHAPTER II

MASQUERADE MISSION

"**S**AY that again," Knight said. And Rodman quickly replied: "You'll be pilots in the French Air Service. Secretly working, of course, for your own Government—but officially just two more volunteers we weren't able to discourage."

"By whose orders?" Knight asked curtly.

"It came from General Brett, the Chief of G-2—after we asked for it," the plump captain said. "Your names have already been removed from the confidential 'Q' roster and pay-roll. If there should be an investigation, no one could prove you were ever in the Intelligence service of the United States. You'll go back on the roster when this mission is finished."

"Now ain't that nice?" interjected Doyle. "When you guys fix up things, you bake it all nice and brown, don't you?"

"I've no time for levity, Mr. Doyle," Rodman said coldly. "This is a matter of national emergency."

"All right, Rodman," Knight snapped. "But suppose you come down off your high horse and get to the point. We'll decide then whether we'll take this mission—orders or no orders."

"Very well," said Rodman stiffly. He stopped the car near the Rue Royale, carefully closed the windows. "As you were told in Washington, a number of American pilots—a few hot-heads and some of the soldier-of-fortune type—have entered a special volunteer air unit of the French Army. We tried to stop them, threatening them with prosecution under an old law. But it didn't work."

"You were sent here to keep watch on the situation. But since then a grave thing has happened. Some one in that volunteer unit has been forging the signature of the President of the United States to fantastic mes-

sages and dropping them in Germany."

"You surely don't think the Nazi High Command is going to take anything like that seriously?" said Knight.

"Not in the inner circles, of course," Rodman said tartly. "But suppose they give those messages publicity—and prove they were dropped by American pilots? Plenty of people back home might accuse the Administration of sticking its nose into this European mess. Anything could happen."

"Sounds goofy to me," put in Doyle. "Everybody knows th' President's signature's been printed a thousand times—anybody could copy it."

"We know it—but the Nazis could make it look bad. The messages are all about the same. They say that the German people are being misled by a group of butchers and liars, and that if they don't overthrow the Nazi regime, the United States will join the Allies and wipe out the whole country."

"How do you know what the messages say?" queried Knight. "Have you seen them?"

"Copies, yes," replied Rodman. "They're really clever photostats of White House stationery, with the messages in both German and English, and the signature forged under both. You can see the possibilities for trouble."

"Yes, but how did you get hold of the copies?"

"They were forwarded through our Ambassador at Berlin, via Switzerland. The Germans said they 'supposed' this was a jest but wanted it cleared up. Obviously they're going easy right now so as not to do anything to draw us into the war against them. But if those messages continue to be dropped—"

"What's the matter with the French Intelligence?" Knight said impatiently. "They could clean the culprits out of this American unit in ten minutes if they tried to. Anybody could."

"But we don't want the French to know," moaned Rodman. "It's sure to leak out if we go to the French—somebody might use it to get us into the war. That's why you have to go in there quietly and put an end to it."

"Of all the dizzy jobs I've had, this is the craziest," said Knight. "All right, let's hear your plan."

Rodman drew a long breath of relief. "I've made a confidential deal with one of the French diplomatic staff. He thinks I'm just trying to get these American volunteer pilots to ask for discharges—there's a special provision for that in their enlistment contract; for if the American Government should request such discharge, the French will grant it. This French official thinks you two are a couple of sportsman pilots who are

doing a little 'missionary' work for us, and he's agreed to get you in with no questions asked, in return for certain favors we've granted. I think they'd be glad, in fact, to have those men out of the squadron—the Germans seem to have made it a special target, and an unusual number have been killed in the last ten days."

"Nice prospect," Knight said ironically. "Just what squadron is this?"

"It hasn't any number," said Rodman. "There's something rather odd about it. The Americans form only half of the outfit; the rest are French. But they're quartered separately, and every time I asked about this I got an evasive answer. I was told the French were older men, some of them veterans of the First World War—but I got the impression there was something else."

"Anyway, the base is one of those underground fields back of the Maginot Line—or rather, forming part of the major Line. It's somewhere near the Saar, but you'll be given exact directions at Le Bourget tomorrow. There'll be a plane there—a two-seater, I suppose—and a French pilot will fly an escort plane to guide you to this base. I understand it's well camouflaged, making it difficult to locate even the landing-area from the air, unless you've been guided there first."

"Did you see what happened back there on the Champs Elysees?" Knight asked abruptly.

"No, I arrived too late, but I heard a German pilot had shot down a French bomber."

"It wasn't shot down, and it wasn't a German ship that attacked it," said Knight. "Doyle and I saw something that should be reported to the French—something I don't believe anyone but some Nazi spies saw, besides the two of us."

HE DESCRIBED the events which had followed the landing of the Potez. When he told how the pilot had seemed to explode before their eyes, Rodman laughed sarcastically.

"I'm afraid you and Doyle had a few drinks too many, Knight. You certainly don't expect me to believe that silly story?"

"I don't care whether you believe it or not. You can at least relay it to French Intelligence as something you heard described by a man in the crowd—also that business of the spies making radio contact from that car."

"Exploding man! They'd give me the horse-laugh," Rodman said shortly. "I'd advise you forgetting the whole thing."

"Th' Brass Hat speaks," grunted Doyle. "They certainly made a stuffed shirt out of you in a hurry—or maybe they didn't have to."

"Why, you insolent beggar!" fumed Rodman. "I'll—"

"You'll give us our instructions and nothing else," Knight said acidly.

"And I'll trouble you for the original order from General Brett before we go any further with this."

Rodman sullenly produced the coded cablegram. Knight examined it under the dashlamp, switched off the light.

"You're to meet a Major Ribault at the War Ministry, at nine o'clock tomorrow morning," the Air Corps captain said huffily. "Ribault will see that you get uniforms and hustle you through the formalities so you can be at Le Bourget by tomorrow afternoon in time to reach the air-base before dark. After that, you're on your own until you get to the bottom of the affair. Then you can apply to the French officer-in-charge for discharge; he'll contact us and we'll have you sent here at once. I'd advise you to get a good night's sleep so that—"

"Somehow, I think we've had enough advice," said Knight. "Suppose you take the sleep and let us worry about ourselves." He opened the door and Doyle followed him out of the car.

"Nice meetin' you, *Mister Rodman*," mocked Doyle. "Run along to bye-bye now, old thing."

Rodman slammed the door, drove off with an angry clash of gears.

"I'm afraid we've hurt his feelings," Knight said pleasantly. Then his tone changed to a more sober note. "Lothario, I can still see that poor wretch standing there paralyzed with the tracers shooting toward him."

They started back along the Rue Royale. "Dick, I don't like this job they've handed us," Doyle muttered. "It sounds like nothin' at all, but I gotta queer feeling—"

"I know, but it's probably the effect of that other thing tonight. Maybe I was wrong, not helping you grab those spies. But our orders were—"

"What's the matter?" queried Doyle, as Knight broke off.

"Von Lehr—I just remembered that name. Hugo von Lehr was F-9 in the *Gestapo* military unit. He was discredited for insubordination, but with the new war they could have re-instated him and changed his designation—"

"But we saw him burn up after that crash when we shot down his ship," interrupted Doyle.

"We thought he was caught in the ship," said Knight. "But this is too much of a coincidence. Von Lehr must have escaped from the wreck—there'd hardly be two von Lehr's in the *Gestapo* F-group, for it's only a small section."

"If he's still on th' job, th' French ought to know it," growled Doyle.

"You're right," Knight answered. "Somehow, we'll have to tip off French Intelligence, but we'll have to wait until we're through this mission."

* * * *

THE CLOCK on the instrument board of the hurtling Delanne plane showed seven minutes past five. Clad in a brand-new French uniform, Richard Knight looked back to where Doyle, likewise uniformed, sat in the

gunner's cockpit of the freakish-shaped double flying-wing fighter. A Madsen cannon tilted skyward back of Doyle's shoulder.

"Lafayette, here we come," Doyle said with a crooked grin. After a moment the grin faded, and he scowled at the escort ship, a Hawk 75-A with the cocardes of France bright on its wings.

"Don't worry about him," said Knight. "That pilot is a harmless youngster. France bought 200 Hawks, so that one we saw last night could have come from anywhere along the Front—or, more likely, it was a ship the Nazis had captured."

"Just the same, I'm keeping my eyes peeled any time a Hawk's around," retorted Doyle.

"You'd better be going over that story we doped out, Mr. Downs," Knight said whimsically.

He and Doyle had decided among themselves to use the names of John King and Herbert Downs during their coming adventure in order that their real identities wouldn't be recognized by anyone checking the records who may have known them when they did work for the Surete. After leaving Rodman, they had surreptitiously got the new names on specially prepared passports.

"I already got the story down pat, Mr. King," Doyle answered Knight's question with a smirk. "Say, I'm about starved. Ain't it time we were getting to that hole in the ground?"

"Don't ask me," said Knight. "The lad in the Hawk didn't confide anything about our destination."

"Let's hope he knows his stuff. It'd be a little embarrassing to pop out of these clouds on th' wrong side of th' Front, and maybe land on a—"

Doyle broke off as the Delanne nosed down suddenly. Knight stared at the Hawk, which was diving toward a break in the clouds after a



hasty flip of its wings. Then beyond the fighter, and barely visible through the cloud gap, he saw two or three ships whirl by. The Hawk plunged through the misty edge of a cloud, and Knight followed it down steeply, tautly aware that the Frenchman was warming his guns.

The two ships plunged into a clear space, a thousand feet above another layer of clouds. Less than half a mile distant, three Messerschmitt fighters were charging in toward a camouflaged Delanne. They had not yet opened fire, and as the Hawk pitched down with its guns blazing the Delanne pilot banked for a swift burst at the nearest Nazi fighter.

The Messerschmitt whipped up into a tight climbing turn, darting in at the Hawk, and the two other Nazi ships followed instantly. Knight

swore to himself. He had hoped to avoid any conflict with German pilots while on this mission, but he could not hold off and see the young Frenchman downed by such odds.

He cut in the gun-switch on the instrument board, rammed his thumb down on the button atop the stick. Four thin rapiers of flame shot from the wings and cowl as the guns responded. Behind him the Madsen cannon roared as Doyle went into action with the powerful gun.

"Try to drive them off!" Knight shouted. "Don't shoot them down if you can help it!"

Three streams of fire were converging on the Hawk, as the swastika-marked ships raced in. Knight flung the Delanne into a grinding turn, hurled a blast within inches of one Messerschmitt. The pilot veered sharply, threw a startled glance backward, then reversed and snatched up a microphone. Knight saw that the other Nazis, like this man, had headsets clamped over their helmets. One of the fighters whirled to join the leader, and with guns flaming they both plunged in at Knight and Doyle.

Dural flew from the right tip of the forward wing. Knight half-rolled, caught the tail of a Messerschmitt as he dived out of the other ship's tracers. The other Delanne had overshot after its first burst, was twisting around, a mile away. Knight sent a hasty look toward the Hawk. It was holding its own, banked in a tail-chasing scrap with the third Messerschmitt.

A hail of Nazi bullets crashed through the top of the cockpit enclosure between Knight and Doyle. The Madsen cannon thundered fiercely, and the charging Messerschmitt dived frantically away from that lethal weapon. Knight caught a flash of the German ship's wings as it pitched back underneath him. With a lightning turn, he flung the Delanne around after it. All thought of driving off the Nazis was gone now. This was a grim fight for life.

The Hawk's attacker left off suddenly and sped in to the aid of the endangered fighter. But his swift maneuver came too late. Knight jabbed at the stick-button, and in one terrific blast the four guns riddled the fleeing Messerschmitt.

With a crackling sound heard even above the din of the motor, the Nazi fighter broke in two just aft of the cockpit. Fragments of shattered wings and fuselage swirled into space, as the forward section of the broken fighter plunged onto its nose and hurtled down into the clouds.

Furiously, the remaining Nazis drove in at the Delanne. A burst tore a gaping hole through the edge of the left rear wing, missing the cockpit by hardly a foot. Doyle's cannon roared—stopped abruptly as the other Delanne joined the fight and darted in at the first Messerschmitt.

"Th' dumb fool!" howled Doyle. "I'd have had that rat if he hadn't horned in!"

CHAPTER III

THE HAUNTED SQUADRON

THE ARRIVAL of the other two-seater at once split the two Messerschmitts. One streaked up in an Immelmann, then dived at the Hawk, which was charging back into the battle. The Hawk pilot zoomed to meet the Nazi ship, was lost from Knight's view when the other Delanne flashed by at close range. A flurry of tracers from the second Messerschmitt grazed Knight's left rudder, smoked between the staggered wings. Knight swiftly crossed the controls, hurled the Delanne back at the German. To his dismay, the other Delanne whirled simultaneously for another fusillade.

With a frantic push at the stick, he dived under the French two-seater. For a split-second he thought they would collide—then the other Delanne was past and half a mile distant before he could turn his head. The Hawk was twisting down, evidently crippled, with one of the Messerschmitts slanting in for a kill. Knight plunged after the Nazi pilot, but Doyle's cannon blasted before he could get the ship in his sights. Smoke and flame gushed from the Messerschmitt's nose as the Madsen made a direct hit. In an instant the entire ship was ablaze.

The third Nazi pilot frenziedly zoomed for the clouds and disappeared from sight. Knight ruddered in beside the Hawk, saw the young Frenchman slumped down in the cockpit. As the Delanne came alongside, the Frenchman raised his head, then with an effort lifted one hand and pointed downward. Knight followed through the lower clouds, and they came out above a patchwork of farms and gently rolling hillsides. The Frenchman's ghastly face appeared above the edge of his pit, then he dropped the Hawk in a steep forward slip.

Knight searched the now shadowy terrain below, but he could see no landing field. In a moment the Hawk straightened out, glided unevenly toward a road that led northeast. A row of poplars bordered one side, and at a little distance ahead there was a small farmhouse nestling among other trees.

The Hawk landed, started a groundloop and came out of it with a jerk, stopping sixty feet off the road. Then Knight saw that the ground alongside the road was as smooth as the highway itself, and that what had appeared to be a ditch beside the road was only camouflage. As he leveled off he saw that there was a runway a hundred feet wide, leading to the base of the little knoll on which the farmhouse stood. But the ground had been so well camouflaged that from a few hundred feet above it would appear to be only a meadow bordered by the road.

The shadows on the side of the knoll suddenly changed, and two huge doors slid back on concealed tracks, doors covered with painted papier-maché and wood molded to look like the rest of the slope. The dark maw of an underground hangar was re-

vealed, and in a moment a dozen men hurried out to roll the Hawk inside. One of the men signaled peremptorily to Knight, and he taxied in quickly. He was headed toward the right-hand side of the entrance, but the signaler made a sharp motion for him to come in on the left.

When he reached the opening he saw that a partition divided the underground base into two parts, with separate doors so that ships could be taxied in and out of either space without opening the other. Farther back in the left-hand hangar he saw a number of ships and neatly divided spaces for shops and fuel compartments. Lights, shielded from the entrance, gave a fair visibility. But on the right side of the partition, he saw as he taxied in, everything was dark.

A French Air Service captain, a short, wiry man with alert black eyes, appeared beside the Delanne as Knight let the motor die. He started when he saw Knight's face.

"*Nom de Dieu!*" he exclaimed. "You are not *Monsieur Todd!* Who are you—what are you doing here?"

Following the plan Doyle and he had evolved, Knight pretended not to understand French. He climbed down, took out their orders as Doyle joined him.

"Volunteers—American," he said. "If somebody here speaks English—"

"I understand English," snapped the *capitaine*. He glowered at the order, then his expression altered. "*Bien*, I did not know you were coming. But we need new men, and badly." His dark eyes shifted to the Hawk, as a dour-faced sergeant approached.

"The man is dead, *Capitaine Deroux*," the non-com said emotionlessly. "He must have died just after he landed. He was shot in at least four places."

"Have him carried to the elevator and taken below," ordered Deroux. "Assign one man to see that the body is taken to the rear when the supply train returns to Base Nine."

Knight watched the French mechanics carry away the dead pilot. "Poor kid," he muttered.

"We heard the battle," Deroux said crisply. "How many Germans attacked you?"

Knight briefly described what had happened. Deroux frowned when he mentioned the other Delanne.

"The second time," he said, half to himself. "They will get him yet, if he does not—" he interrupted himself as the whine of a swiftly-landing ship was heard. Knight turned, saw the other Delanne sweep down onto the camouflaged runway. The plane slowed a few yards from the entrance, and he thought the pilot was going to step down to thank them for coming to his aid. But without even glancing in their direction, the pilot taxied into the compartment beyond the partition, and the next moment the hillside door rumbled shut.

"PLEASANT sort of bird," growled Doyle. "Might at least've said thanks for pullin' those Messerschmitts off his tail."

"*Monsieur Downs*," Deroux said drily, "in modern war there is little time for pleasantries. As a lieutenant in the French Air Service, you simply did your duty."

"Okay with me," grunted Doyle.

"And as your immediate superior," Deroux said sharply, "I might suggest a more formal attitude. In the French service, the superior officer is greeted with a 'sir' or his title."

Doyle turned a dull red, and Knight hastily intervened.

"Downs meant no offense, Captain. We've been used to flying with the Chinese, and they don't go in for ceremony."

"Very well, *Monsieur King*," Deroux said in a stiff voice. "I might add, for both of you, that all orders will come through me. Although the volunteer squadron is under command of the senior officer of this air-base, he prefers not to see anyone—or be seen. Later, you may understand why."

There was something faintly sinister in Deroux's words, and Knight glanced involuntarily toward the partition. He saw only one door, about midway, and this was secured by a heavy lock. But Deroux made no attempt to explain. Ordering the hangar door closed, he led the two Americans past a row of Delanne fighters and Potez light bombers to a concrete stairway at the rear of the base. They emerged through a gas-proof entry into the living-quarters on the level below. Knight saw another stairway, leading down still farther, with a barred door at the top.

"That passage goes down into the main communication tunnel of the Maginot Line," Deroux said. "When you have been here a while you will be permitted to inspect it."

At the end of a short hall they came to another door marked in both French and English, "Officers' Quarters." As Deroux opened it, a hum of voices was audible, broken suddenly by an hysterical outburst.

"I can't stand it any longer, I tell you! If they don't transfer me or give me my discharge, I'm going to quit!"

"Shut up, Wade," said another voice. "You're drunk."

Knight's gaze flicked rapidly around the lounging-room which they had entered. It was well lighted, and furnished like the smoking-room of a club, with aerial pictures on the buff-colored walls and a small bar in one corner. Shelves of books ranged along the opposite wall, and a table littered with magazines stood in the center of the room. A dozen men, all wearing the uniform Doyle and he had donned, sat around staring at the two men who stood by the bar. The first was about twenty-two years old,

with a somewhat dissipated face and eyes now heavily bloodshot. He held a half-empty glass in one shaking hand. Knight hid a start when he saw the second man, and recognized that lanky, quiet figure. It was Ben Morton, soldier-of-fortune pilot whom Doyle and he had known during their secret operations in the Spanish civil war.

"Messieurs," Deroux said tersely, "I have brought you two new comrades—John King and Herbert Downs. *Monsieur Morton*, as the senior lieutenant, will you make the introductions?"

Ben Morton's eyes held Knight's for just a second, then he nodded and reached out his hand.

"Glad to know you, King—you, too, Downs. Meet Ferris, Slade, Johnson, and Wade here—"

"What's the sense of pretending?" shrilled the man with the bloodshot eyes. "Tell them the truth—tell them they'll wish they'd never seen this hellhole—"

"Lieutenant Wade!" rasped Deroux. "I have already warned you—"

"Go ahead and lock me up!" cried Wade. "Anything's better than waiting here—going mad like Stringer—going out there and waiting for that curse to strike."

Quietly, Ben Morton took the glass from Wade's hand. "Ferris," he said. "Take him into the mess. It's almost time for chow, and there'll be some black coffee ready."

Ferris, a grim-looking man about thirty, took Wade's arm and started toward the mess door. But before he reached it the door opened and a uniformed Annamite mess attendant appeared to announce the meal.

"Guess we might as well all go in," Morton said. But Deroux motioned for him to wait as the others filed past Knight and Doyle.

"I have something to tell you, Morton," the *capitaine* said in his crisp voice. "Todd and Garvis did not come back. I fear they have gone like—the others."

A shadow crossed Morton's face. "That's going to make it bad in there when I tell them."

"There's no need to do it now," Deroux answered.

"But they were slated for that photographic mission tonight," said Morton. "And two or three fellows are almost ready to crack."

"Then assign King and Downs to that mission," ordered Deroux. He turned to Knight. "I dislike sending you out at once, but this is an emergency. Morton will give you the details. Meantime, Morton, tell the others that Todd and Garvis were forced down behind our lines but are safe."

"One moment, Captain," said Knight, as Deroux started to leave. "There is something I want to tell you—a peculiar incident Downs and I witnessed last night in Paris."

ELMINATING mention of their secret service connections, and also von Lehr's name, Knight related

the incredible events on the Champs Elysees. Both Deroux and Morton started when he described the weirdly handsome pilot of the Potez.

"Good Lord, then Stringer really saw—" Morton began.

Deroux silenced him with a gesture. "Wait. Let us hear the rest. What happened after the pilot so mysteriously stiffened?"

Knight hesitated. "He— disappeared."

"Go on, tell 'em what you said last night," cut in Doyle.

"The man appeared to explode," Knight said slowly. "There was a flash, and I felt the force of an explosion—and he was gone. If you question my sanity, you can telephone the



police at Paris and they will tell you there was a charred spot on the pavement."

"You thought this—man—was carrying a bomb of some kind and it went off?" hazarded Deroux.

Knight shook his head. "I have no theory. Mr. Downs thought the man performed some kind of vanishing act, like a magician on a stage."

Morton and Deroux looked at each other.

"Amazing," said the *capitaine* in an oddly subdued voice. He strode across the lounge, fingered over some books on a shelf and brought one back. Opening it, he flipped over the pages, then pointed to an illustration. Knight's eyes widened as he saw the picture of a pilot standing beside a 1917 Nieuport.

"The same one!" he whispered. "I'd know him anywhere."

"Read," said Deroux, and Knight looked down at the legend. "*Capitaine* Rene Landrau, on July 13, 1917, beside the Nieuport in which he shot down his fourteenth Boche, and in which he was later killed."

"Killed!" Knight said, stunned. Doyle peered over his shoulder at the illustration.

"Holy smoke! You mean—"

"I don't pretend to know what it was you saw," Deroux said grimly. "I have never believed in the supernatural. But one of Morton's pilots—a man named Stringer—claimed that Rene Landrau had appeared before him and predicted his death. Stringer knew Landrau in the First World War—he was a young American pilot then—and we thought the strain of this war had brought back memories, a delusion of some kind. But Stringer was shot down over Saarbruecken, exactly as he said Landrau had foretold."

Knight felt a sudden tingling along his spine, then he set his jaw.

"I don't believe in ghosts that can fly airplanes. The man we saw must have only been some one who looked

the way Landrau did twenty-two years ago."

"A strange coincidence," Deroux said thoughtfully. "And his vanishing—that was the word Stringer used. He said Landrau appeared and suddenly vanished. Tell me, why did you wait to report this until you arrived here?"

"We were afraid nobody would believe the story," Knight answered.

"Quite understandable," said Deroux. "I frankly hesitate to report it to my superiors. But in view of all that has happened—Morton, take the lieutenants into mess, and I will see you later. *Bon soir, messieurs.*"

He hurried out, and for several seconds after the door closed no one spoke. Then Morton looked inquiringly at Knight. "Might as well clear it up now. What are you two doing here under fake names?"

"We thought it was a good idea, since we were volunteering against that 1911 law, not to use the right ones," said Knight.

"Now listen, Knight," Morton said quietly, "I know you birds are in the Government service—I know the chap who was head of the Loyalists' intelligence in Spain, and he told me. So what's the set-up?"

"All right, Ben," replied Knight. "We'll have to trust you—and we're going to need help, at that. Do you know anything about any forged White House messages being dropped by pilots in this outfit?"

Morton looked at him blankly. "Is this a gag? I don't get it."

Knight explained briefly.

"They never came from here," asserted Morton. "Sounds to me like some Nazi trick, or somebody's pipe-dream."

"I told you it was screwy," Doyle blurted out. "Those embassy fat-heads must've pulled it out of the air."

"Wait a minute," said Knight. "Ben, what about this outfit in the other half of the base?"

"What did Deroux tell you?" countered Morton.

KNIGHT repeated the *capitaine's* words, whereupon Morton replied: "That's exactly what we've all been told. I'm the only one who's learned any more. They swore me to secrecy, but since you're Government men I'll tell you. There's a huge base almost directly under this—spreads out a quarter of a mile, and has several levels. There's a hospital, troop barracks, gun and ammunition supply dump, and a lot of other stuff—beside the Headquarters for the French First Army.

"Two main tunnels intersect down there, with electric trains branching to the rear and to the front-line posts of the Maginot Line. It's a key spot, and this squadron is intended for special service, getting information, doing aerial intelligence, and so on. A week ago they took me down there for special orders, and I ran into two of the pilots from the other side of the base. Believe it or not, they both

had on full-face white masks."

"What's the idea?" demanded Knight.

"Your guess is as good as mine. I think they're some high-up air intelligence unit, and they're taking no chance of letting everybody in on who they are, in case they have to do any work in the German lines. The staff officers seemed almost scared of them, and I noticed they didn't use any names while I was down there."

"Whoever they are, one of the two I saw must be a wizard with a ship. I heard a staff officer tell him they'd confirmed his tenth victory. I knew they'd been holding out the true figures on air battles, but I didn't think anybody'd gotten ten Nazis yet in this *guerre*."

"That's all you know?" queried Knight.

"That's all. They're the only ones I've seen close up. They have their own mess and quarters—Deroux eats with them—and they taxi in and out as though we didn't exist. Usually they go out ahead of us and land after we're back in the hangar. They get into plenty of action, I know that. I've seen their ships after a scrap, and Deroux said they'd lost seven men since the war started."

Doyle started to speak, but Knight gave him a rapid glance.

"Let's eat," he said. "We can talk this over later."

They went into the mess. It was a large room, rather softly lighted, with concrete walls painted in imitation of wood paneling to relieve their harshness. There was colorful linoleum on the floor, and a mirror was secured above the serving-table from which two Annamite mess-boys were carrying food to the pilots. But for the lack of windows, and the constant, low whisper of air being forced through the ventilator shafts, the fact that it was deep underground might have been forgotten.

Most of the pilots were through eating. There was an air of tension in the room, and the attempts of one or two pilots to relieve the strain with jokes fell glaringly flat. In a few minutes all but Wade drifted out to the lounge. He waited until only Morton and Knight and Doyle were left, then he stood up and came over to the senior pilot.

"What did Deroux want?" he demanded.

"Just gave me some orders for King and Downs," said Morton.

"You lie—you're keeping something back!" raged Wade. "That discharge request of mine—how do I know it was forwarded?"

"I gave it to Deroux," Morton said wearily. "Run along, and stop bothering me."

Wade stumbled over to the mess-room phonograph, put on a record, sat staring at the wall with unseeing eyes. He was still sitting there while the phonograph automatically changed its records, when Knight and the others finished eating. Morton jerked his head, and Knight and Doyle followed him into the lounge.

"Let him stay there," he said under his breath. "Anything to keep him quiet for a little while. Everybody's jittery enough without his blowing up."

"How long before this mission of ours?" Knight asked, as they stopped near the bar.

"About half an hour—it'll be dark by then. Here, I'll show you the salient you're to photograph."

Morton pointed to a map-rack near the book-shelves. He had just begun to indicate an area east of Saarbruecken when an unearthly scream rang out from the mess. Knight whirled, was the first man to reach the door.

He flung it open, was carried inside by a rush of men behind him. They all stopped, as Wade staggered toward them, his face a ghastly white.

"Death!" he moaned. "It was Death—he was here—in this room—"

With a choking cry, he fell to the floor. A hubbub broke out as Knight hastily knelt beside the crumpled figure. He barely heard the strangled whisper:

"Death's face—in the mirror—heaven help me!"

CHAPTER IV

THE FACE IN THE MIRROR

"IS HE—DEAD?" one of the pilots said tensely, as Knight rose.

"No, he's only fainted," Knight answered. "Too much to drink—nerves let go, I guess."

Doyle was staring around the mess-room. "What'd he mean, Dick?" he whispered as Knight stepped away from the group. "He said Death was in here—"

"Hysterical, obviously," said Knight. He glanced toward the mirror above the serving-table. Only the



smooth expanse of the mess-table, and the countenance of a frightened Annamite messboy showed in its silvered surface.

"*Mon Dieu!* What is wrong here?" Deroux's voice sounded from the doorway. The captain came into the room, pushed some of the pilots aside. Morton explained what had happened.

"I'll have him taken down to the hospital at once," said Deroux. He sent a pilot to summon two mechanics, and Wade was speedily carried out. Deroux turned to Morton, who was talking to Knight.

"Order Number Five is in abeyance for this evening," he said in an undertone. "Let your men drink all they please—I will send over some cognac if you need more—it will help them forget this unfortunate affair."

"Good idea," said Morton laconically. He waited until Deroux had left, then passed the word among the pilots. They needed no urging, and the messroom was quickly emptied.

"Usually, they hold us down pretty much on drinking," Morton told Knight as they followed into the lounge. "Deroux's a bit of a martinet. Have one before your mission?"

"No, thanks," said Knight. "I'll wait till we get back."

"One slug won't hurt me any," said Doyle. He picked up a glass, and Morton filled it. Knight took a swift look around the lounge. No one was watching him, and he surreptitiously moved back to the messroom door, slipped inside. The Annamites had gone, and there was only a single dim light. He tiptoed into the kitchen and pantry, came back near the phonograph by which Wade had been seated. He sat down, looked toward the mirror, saw nothing unusual there. Then he stood up and leaned closer to the glass surface. The upper part of his body was reflected, the lower part being cut off by the serving table. In the unfamiliar French uniform, he looked almost like a stranger.

He started to turn toward the door, then jerked back, suddenly tense. A faint cloudiness was coming over the mirror, a hazy something that vaguely blurred his face. A cold chill went over him as that blurred image began to change. Before his eyes, his own face was turning into some horrible thing . . .

"Good Heavens!" he cried, and sprang back, shaking.

A death's head was leering at him from where his face had been—a face like a skull, with horrible, mocking eyes.

The lips—his own lips, now the fleshless lips of a skull—moved slowly, and as in some frightful nightmare he heard the whispered words.

"Knight! At last, I've got you!"

With a stifled cry, Knight lurched back from that terrible vision in the glass. His outflung hand struck a pile of records, and they cascaded to the floor with a crash. Almost instantly, the door to the lounge burst open, and Morton appeared, with Doyle and two or three others behind him.

"What th' devil?" exclaimed Doyle. "You look like you'd seen a ghost!"

"I felt dizzy for a second," mumbled Knight. "Must be my liver—I bumped against the stand and broke some of the records."

His gaze shifted back to the mirror as he spoke, but now only his own face, strained and white, looked back at him.

"Sorry about the records," he said thickly. "I'll settle up for them."

"Never mind that," said Morton. "I think you need some brandy, after all. Come on, you've still time for a drink."

The rest of the volunteer group, after a few curious glances at Knight, went back to the bar. Knight joined them, and the warmth of the cognac

took some of that icy chill away from his heart. But as he was going out to the hangar with Doyle and Morton, a few minutes later, Doyle spoke up abruptly.

"Dick, what really happened in there?"

"Just what I told you," Knight answered, almost roughly.

"Okay," grunted Doyle. "Only don't think you're foolin' me any. Your liver never kicked up like that before."

THE THREE MEN were silent until they reached the Delanne which had been rolled out to the entrance for the special mission. Morton went to a locker, brought back two belts with pistols and extra magazines, loaded.

"Just in case you're forced down in Germany and get a chance to run for it," he said. "And, King, you'll find a photostat map with radiobeam signals for this part of the sector, in your cockpit. Set your direction-finder for fifteen degrees offset, left, and you'll be on the course to the spot we want mapped. Same offset to the right will bring you back over here. Gun your motor two shorts and two longs, and then watch for flashing blue lights—but you'll have to be down to two hundred feet to see them. Don't use your landing-lights unless you have to, and cut them off the second you're down."

"Sounds all right," Knight said. "By the way, Ben, while we're on this jaunt, you might drop down to that hospital and see if Wade's come out of it, and ask him exactly what he saw or heard. But don't ask him unless you can see him alone."

"I don't know whether they'll let me down there, but I'll try," said Morton. He looked sharply at Knight, but the Q-Agent turned and climbed up into his cockpit without explanation. The Hispano-Suiza motor was already warmed, and it throbbed into life quickly. He fastened his chute-harness, the safety-belt, then shot a glance at the automatic camera clamped over the floor opening between his pit and Doyle's. The sight of it brought back the scene in the Champs Elysees, with the mysterious pilot reaching up toward the camera on the wing. Then the grim apparition he had seen in the mirror drove that thought away, and in spite of himself he shivered as he recalled that horrible transformation of his face into a living skull.

Gritting his teeth, he forced his attention to the ship, and taxied out as the mechanics dimmed the lights and opened the hillside door. Two men with faint blue flashlights guided him to the end of the runway, helped him turn. He switched on the radio, adjusted the offset, and a moment later the Delanne was thundering up into the darkness. Watching the radiobeam dial-needle, he climbed quickly, following the course Morton had laid out. The clouds had lifted, and broken so that stars were visible in patches overhead.

"I gotta hunch this won't be any picnic," Doyle yelled from the rear cockpit. "You know how good anti-aircraft guns are these days."

"I'm going to start zigzagging and changing altitude before we're over their lines," said Knight. "We'll have to hold straight only about twenty seconds, at this speed, to get the pictures. Be ready to drop the flare and cut in the camera when I signal."

"Don't worry," retorted Doyle, "I ain't goin' to be pickin' daisies."

The Delanne was at 6,000 feet, and according to Knight's estimate somewhere between the Moselle and the Rhine, when an anti-aircraft shell burst at their level and a hundred yards to the right. Simultaneously, two searchlights cut the sky like giant swords. The beams angled up from behind the ship, from somewhere in the Maginot Line.

"Th' lousy frogs!" howled Doyle. "Don't they know their own ships?"

Two more shells burst, as Knight hastily zoomed and changed course. Then the gunfire suddenly ceased, and one of the searchlights whipped up to a steeper angle, probing the sky above the Delanne. Knight stared upward, then with a shout at Doyle hurled the Delanne into a lightning turn.

Streaking down through the beam, all four guns blazing, came a Hawk fighter!

Doyle whirled his Madsen cannon. One shot blazed from the weapon, and that was all.

"Dick! This gun's jammed!" Doyle bellowed. "You'll have to take him!"

Knight's guns were already pounding a warming-up burst. He slammed the stick back, rolled halfway at the top of the zoom for a blast at the diving fighter. The Hawk flashed by, came back at terrific speed. Tracers blazed across the left wing of the Delanne, dipped to rake the two-seater. Knight booted the rudder, and the Delanne shot sidewise out of danger, wings screaming in a fast power-skid. The Hawk overshot, disappeared in the gloom beyond the searchlight beams. Knight climbed at full throttle, twisting constantly. The Hawk reappeared, lanced down beside one of the beams. Knight went rigid as he saw the pilot's face, brightly illuminated in the light that flooded the transparent enclosure.

It was the face of Rene Landrau—who had died in the First World War!

WITH a swift change of direction, the Hawk darted for the tail of the Delanne. Knight feinted a turn, sent the two-seater roaring into a tight Immelmann. The Hawk shot up after it, but Knight was already nosed down, guns flaming. The tracers of his outer left gun struck fiercely into the side of the fighter, aft of the pit. The Hawk staggered, fell off to one side, but quickly pulled out.

Knight let up on the stick-button, pitched down at the single-seater, hoping to drive it back into France. By the weaving searchlights he saw

a ragged hole in the Hawk's side. The pilot was looking back at it, his starkly handsome face as unmoved as it had been in that mysterious scene on the Champs Elysees. Without the slightest warning, without even turning his head, the pilot jerked the fighter up and around for a raking attack on the Delanne. Knight's thumb clamped down on the gun-button, and a crashing burst struck the nose of the Hawk just as the fighter's bullets gouged the Delanne's right forward wing.

Dark, oily smoke puffed from the Hawk's cowl, billowing out around the ship. Both searchlights instantly shifted to the Delanne, and by the time he had shaken them off the Hawk was gone, with only an ominous smoke-cloud where it had flown.

"Dick, did you see his face?" Doyle said in an awed voice.

"I saw it, all right," Knight answered tautly. "What happened? Did he bail out or crack up?"

"I don't know—but th' ship spun in!" exclaimed Doyle. "Look! It's a flamer!"

Far below, the unmistakable blaze of a burning plane could be seen. Almost at once, anti-aircraft shells began to burst near the Delanne. Knight zigzagged swiftly upward, twisting and turning until they were in the clouds and hidden from the searchlights.

"Now what?" demanded Doyle.

"We're not going to take any pictures, that's certain," said Knight. He surveyed the bullet-torn camera by the dim glow of a cockpit light, gingerly tested the controls. The flippers were sluggish, and he knew that a burst had gone through at least one of them, but the ship still answered.

"That pilot's face—what's th' answer?" Doyle said shakily. "You think Landrau could still be alive?"

"He wouldn't look the way he did twenty-two years ago," Knight answered. "He'd be a middle-aged man by now."

He banked, flew by instruments for a few minutes, meantime checking the radiobeam indicator. Doyle leaned forward from his cockpit.

"We goin' back to that crazy-house?"

"It's all we can do," said Knight. "But we're not going to tell anybody about this Landrau business. Things are bad enough back there now. Beside, I've an idea I want to check on."

Ten minutes later, after a careful radio-approach, he signaled for the blue lights, saw them flash, and made a landing. The first person he saw when they were inside the base, with the door closed, was Deroux.

"*Nom d'un nom!*" gasped the capitaine. "Your plane—it is almost shot to pieces."

"And not by Germans—unless the fellow was a spy," Knight said angrily. "We were attacked by a Hawk with French cocardes—the crazy fool must have mistaken the Delanne for a Nazi ship."

"Did you get the insignia?" ex-

claimed Deroux. "If so, we can report him."

Knight shook his head. "It was all too quick. But I think he was forced down—we saw smoke coming from his cowl. I had to fire in self defense."

"But of course," said Deroux. He looked around at the staring ground men, lowered his voice. "Say nothing more of this, *messieurs*. Go in and join the other pilots—say the mission was completed, if you are asked. I will see about another attempt, at dawn."

Knight nodded, went over to the locker and hung up his pistol-belt. There was a small blue-lens flashlight on one of the shelves. He slipped it into his pocket without attracting attention, waited for Doyle, then went down the stairs into the quarters. Clinking of glasses against the syn-copation of an American swing-band record greeted them as they entered the lounge. The phonograph had been moved in from the mess, and an air of hilarity replaced the previous tension.

"Where's Morton?" Knight asked one of the pilots.

"He went down below, to check up on Wade," was the answer. "Grab yourself a drink."

Knight mixed a brandy-and-soda, casually watched the group. When he finished the drink, he drew Doyle to one side.

"I'll be in the room Ben assigned us—when he comes back, bring him in. And don't get tight—you may need your wits about you before this night's over."

"I knew it," mourned Doyle. "First good party I've run into for months, and I've gotta play it easy."

Knight grinned, went on to their quarters, a fair-sized cubicle with bunks like those in a ship's stateroom. He lit a cigarette, stretched out, without undressing, on the lower bunk, and lay there thinking over what had happened since their arrival in Paris. He was not conscious of dozing off, and he awoke with a start at the sound of some one in the room.

It was Doyle, and he was starting to take off his military coat. Knight jumped up, took a quick glance at the clock.

"One-thirty! Why didn't you wake me up?" he rapped.

"Th' party just broke up," said Doyle, a trifle thickly. "Morton ain't shown up yet—I was in here a coupla times, but you—"

"Put your coat back on," said Knight. He was wide awake now. "I don't like it—about Ben. But there's one good sign—nothing else has happened here."

"Where we goin'?" queried Doyle.

"To the mess—if you're sure everybody else has turned in."

"Yeah, I put Ferris to bed—he was the last one."

Knight glanced at Doyle's armpit gun, as his partner put on his tunic, and unbuttoned his own coat to have easy access to his .38. Doyle's sleepy look vanished.

"Say, what's up?" he burst out.

"Not so loud," cautioned Knight.

He led the way into the hall, tiptoed to the mess, then motioned for Doyle to close the door. The polished surface of the mirror reflected the glow of the single light left on. Knight scrutinized the frame, turned to Doyle.

"Get a heavy knife, or something to pry with, from the kitchen. Unless my guess is wrong, we've found a key to the riddle."

CHAPTER V

BEHIND THE MASK

"HUH?" said Doyle. "Hurry up," said Knight. "We've got to get through here."

"What're we playin'—'Through th' Lookin' Glass'?" snickered Doyle.

Knight growled something under his breath, went into the kitchen and rummaged until he found a small chisel evidently used for opening boxes of canned goods. With a potato



masher for a hammer, he returned and set to work. In a few moments part of the frame came loose, and he soon had it entirely removed. Doyle blinked as the glass remained in place.

"It's fitted into a niche," explained Knight. "There's some kind of trick arrangement here."

He pushed in, but the glass did not give. As he moved his hand across it, the mirror unexpectedly slid sideways, revealing the fact that the silvered glass was only a part of a long, rectangular panel arranged to slide noiselessly on quiet bearings. Adjacent to the section which had served as the mirror was an area with a duller, cloudier silver backing, gradually shading off into frosted glass so thinly treated that it was possible to see through and into a dark passageway beyond.

"Holy cats!" whispered Doyle. "How'd you know this was here?"

"I figured out it had to be something like this," Knight answered. Then he explained in a low voice what Wade had said before lapsing into unconsciousness, and how the death's-head face had appeared in the mirror in place of his own.

"It's easy enough to see how it was done. Some one stood behind there, probably with a mask made up to look like a skull, and slid the mirror while I was looking at it—just as it probably happened with Wade. As the cloudy section blurred my reflection, it looked like a haze coming over the glass, and the change was so gradual I didn't notice the movement in this dim light. It just seemed to be a sort of swirling haze—and then as my reflection faded out I saw the face or mask behind this half-frosted part, and it looked as though my face had changed into a skull."

"Judas!" muttered Doyle. "But what's the idea, anyway?"

"It must have been fixed up with some idea of scaring the American volunteer pilots into asking for transfers, or discharges—the same as those fake White House messages, which I'm sure were dropped in order to bring about pressure which would get these pilots out of here. Whoever did it probably expected our Embassy to kick to the French at once, which would get swift action."

"But who's doing it—and why?" insisted Doyle.

"That's what we're going to find out. The answer lies at the other end of that shaft. It's evidently a ventilator shaft which they found they didn't need to hook up for this room, so they covered it with a mirror—you can see this other thing has been put here recently."

"How are we goin' to get in there?" said Doyle.

"I think it will slide a little farther," answered Knight. He pushed hard, and the panel moved a foot or so, then bumped along for a few inches as it went off the rollers. He climbed through, helped Doyle make a tighter squeeze, then switched on the blue flashlight. The ventilator shaft extended straight ahead for fifty or sixty feet.

"Leave the mirror where it is," he told Doyle in an undertone. "If we have to come back in a hurry, we don't want that in the way."

Cautiously, they stole ahead, made a turn and kept on, meantime passing several grilled openings leading into rooms and halls of the volunteer squadron. Then there was a long stretch, with one large grille. Knight peered through it.

"The hangar section," he whispered. "We're heading over into the part beyond that partition, as I expected."

A minute later, after three or four turns, he halted as voices were audible from ahead. Moving with utmost care, he approached the grille through which the sounds were coming. Doyle crept up beside him, and they both listened intently.

"It was a mistake for the High Command to insist on getting rid of the *Amerikaners*," a ponderous voice said in German. "They have never suspected the truth—even after *der Major's* tricks with the mirror, and their losing so many pilots. All they talk of is a curse—*Himmel*, what *Dumkopfen!*"

"But they could have suspected, or they might have found out something," a curt voice answered. "The High Command was right—and their method was good, also. Why the *Amerikaner* ambassador did not demand the recall of these men, after the forged messages were sent him, I do not see yet."

"Ach, no difference it makes now," said a third man. "*Der Major* we lose, ja, but the time it soon is—"

"*Mein Gott!*" the second German burst out, and there was a sudden scraping of chairs. "*Herr Major*—they said you—"

"No matter what they said!"

snarled a voice Knight found vaguely familiar. "I'm still alive. That *Teufel* flies with the fiend's own skill—but I'll deal with him in short order."

"How did you get here, if you were downed at—?"

"I identified myself at an outpost pillbox," snapped the unseen major. "It took all this time to get back through the tunnels—there was no transport operating. But now, what of the plans?"

"The contacts for the hidden charges have been wired to the master-switch," said the ponderous voice. "The squad is ready for the action below, if you still think it safe—"

"Who speaks of safety in a war?" rasped the major. "With the key-map to the Maginot Line our bombers and artillery will be able to pound the most vital points—after we have blown this gap in the 'B' Sector to-night."

KNIGHT STARED across at Doyle, whose face showed white in the wan light that came through the grille. Then he edged closer to the opening, standing on tiptoe so he could see down through the slanting louvres. He was looking into a duplicate of the lounge in the American section, except that the table was littered with maps and mosaic photographs of the Western Front.

Half a dozen men in French uniform sat around the table, and through the door to the mess Knight could see twice that many. Most of the men had on helmets, with goggles sticking from their pockets or already on their helmets, ready to be pulled down in place. Two of the men at the table had white masks lying before them. There was nothing unusual about the two men, but as Knight saw the helmeted figure standing by the table he drew in his breath sharply.

For the third time, he was looking on the weirdly handsome face of Rene Landrau.

By the lights of the lounge, there was something suddenly incongruous about that hard, yet youthful face. But before he could tell what it was, there was a sound of running feet, and Deroux came into the room, panting.

"The passage!" he said wildly. "The mirror is open!"

With an oath, the handsome leader sprang toward the wall. Knight whirled, collided with Doyle in the gloom, and Doyle fell to his knees. The next instant a small door which they had failed to see in the darkness burst open and two or three of the spies sprang inside. Knight's gun was out, but as he saw Doyle sprawled helpless before him he grimly raised his hands.

"Knight!" breathed the man with the rigid, handsome face, and there was a murderous exultation in the word. Then Knight saw that the eyes were too deep-sunken in that strange face, and he knew the truth.

"Bring them out!" said the major fiercely. "Take his gun, Deroux—and

search that swine with the crooked nose."

Something in the back of Knight's mind clicked then, and he knew that voice.

"You can take off the mask, von Lehr," he said coldly.

The other man went rigid, then with a furious motion he raised one hand, and whipped the molded celluloid away. Knight stiffened, and a sick horror went through him.

He was looking on the death's-head which had leered at him through the mirror!

"Look at me, damn you!" screamed von Lehr. "You did this—you and that butcher with you!"

"You're mad," Knight said hoarsely.

"You shot me down—in flames!" The mutilated German took a step closer. "You thought I was dead—but they dragged me out, after the fire had eaten away my face!"

Knight recoiled before the fearful ruin thrust before his eyes. Von Lehr laughed insanely.

"I wondered why *Gott* let me live—now I know. It was for this moment." Von Lehr whirled to the gaping spies, and his maimed features contorted in a madman's fury. "Get a thermo-flask of the liquid oxygen," he snarled at one of the men.

"But, *Herr Major*," stammered Deroux, "there is none up here. It has been used in mining the tunnels below."

"There is a flask in one of the false-bottom cameras which we used for transporting it," grated von Lehr. "I saw it in the supply room."

"But what are you going to do?" said one of the Germans, in a frightened voice.

Von Lehr slowly replaced the mask of Rene Landrau's face, but the horror of his maimed face stayed like some evil thing shining through his dilated eyes.

"I will see him die—terribly. He will die just as that clever fool Stringer died after he escaped from here last night with the false camera to show the French." The glittering eyes rested on Knight's face. "Yes, I know—they told you Stringer died as the ghost of Rene Landrau had predicted. But he made the mistake of guessing too much—like you, *Herr Knight*. We caught him in here, and Deroux told those imbecile Yankees he had been killed over Saarbruecken. But last night he tricked a guard, then escaped by obtaining and wearing the duplicate mask I had here. He almost ruined our plans. Unfortunately for him; he did not know the special camera he stole for evidence still contained liquid oxygen in the hidden thermo-compartment."

ASICKENING understanding came into Knight's mind. A bullet must have hit the secret container or loosened the valve, so that when Stringer raised the camera the bitter-cold liquid had poured over him. At more than two hundred degrees below zero, the deadly liquid explosive had

frozen him almost instantly where he stood, making him a human bomb, and the tracers of von Lehr's guns had set off the swiftly evaporating charge, blowing him to bits.

"So you understand now?" von Lehr gloated. "*Sehr gut!* You will have time to think of what is coming!"

"*Herr Major*," Deroux put in anxiously, "you will jeopardize our plans—the High Command will be furious if—"

"I have not forgotten the plan!" snarled von Lehr. "But the time will be advanced one hour. Inform Schwarm's detail to be ready to raid the Headquarters with gas in five minutes. Order all the motors started at once." He wheeled to a hulking Nazi in the uniform of a French *sous-officier*. "Wolfe, you and Beickert take the two *Amerikaners* out and tie them to two of the steel columns. Put the liquid oxygen flask near them, and have a man guard it. Just before we take off, I will attend to the rest myself."

"Ja, *Herr Major*," mumbled Wolfe. He gripped Knight's arm, marched him out at gunpoint, while Beickert, a stolid-looking German, followed with Doyle. They emerged in the hall that led to the hangar stairway. As they climbed the stairs, Knight braced himself for a frantic attempt at freedom, but just as they reached the hangar level Deroux caught up with them, breathing hard.

"Wolfe, the prisoners are to be taken to the guard-cells and put with the French pilots. *Schnell!*"

"But the Major's orders?" Wolfe said, uneasily.

"The man is stark mad," snapped Deroux. "He'll wreck the High Command's plan and blow us all to eternity if he tries that crazy revenge he has in mind. As second-in-command, I'll take the responsibility. The rest of the officers are with me. If von Lehr tries to block the plan now, he'll be shot."

Wolfe paled. "Very well, *Herr Hauptmann*. We will lock them up. After all, they will die quickly enough that way—when the master-switch is thrown."

"It is still set for one minute after contact?" the false *capitaine* said hastily.

"One minute," nodded Wolfe. "I set the relay myself. Once the switch is thrown, nothing can stop the relay. The liquid oxygen blasts will wreck the tunnels and communications, and the aerial bombs we cached in the bottom of the elevator shaft will blow the entire base sky-high."

"I'll be glad when we are safely away from here," muttered Deroux. "That crazy von Lehr—" he looked ironically at Knight. "It is too bad, *Herr Amerikaner*, you did not shoot down von Lehr, too, when you caught him at a rendezvous with those three Messerschmitt pilots. You would have saved us a great deal of trouble."

"So you're going to kill him and take the credit for this dirty business?" Knight said grimly.

CHAPTER VI

THE MEN WHO SHOULD HAVE DIED

Deroux scowled at the "Q" agent. "War is war," he said, ignoring the first part of Knight's statement. "If the Allies could wreck the Siegfried Line in the same way, they would do it. We are simply more clever."

"You'll stir up a hornet's nest when France hears the truth," Knight flung back. "It will set off enough fury—"

"Who cares?" Deroux said rudely. "It will be to late. This gap in the Maginot Line will be all we need. We have the outposts marked and can take them, and the French cannot send help because the tunnels will be destroyed. We will drive through the gap before they can stop us."

Knight was silent. He had deliberately kept up the conversation in the hope of diverting either Deroux's or Wolfe's attention for an instant. But Wolfe's gun still was hard against his ribs, and Deroux was not close enough for even a desperate grab at his holstered pistol.

Still hoping, Knight waited for a chance, expecting Deroux to stop in the hangar section and leave them in the custody of the two guards. But the spy *capitaine* followed as they passed between the rows of Hawks, Delannes and Potez light-bombers which mechanics were starting up. Knight noticed that there was only a skeleton crew at work. Though they wore the uniform of *poilus*, he knew they were Nazis, like the pilots he had seen in the lounge.

For a moment a brief wonder at the situation held his attention. Then he surmised a partial solution. The Nazis could have been brought over, a few at a time, in the Potez bombers, after a small armed group had obtained control of the base. Perhaps some of the captives had been flown over into Germany to lessen the chance of an outbreak. But how had the first Nazis gained entrance to the place?

Knight stole a side glance at Doyle as they were marched through a low doorway at the end of the hangar space. Doyle's neck was an angry red, and his fists were clenched, but Bieckert stayed carefully behind him, with a Luger against his prisoner's back.

They went down a short passage, made a turn and came into a military brig built like a modern jail with barred, triple-bunked sections and sliding steel doors. A guard with several keys at his belt sat at a small desk in the central corridor. There was a mutter of voices from the cell-blocks as the two Americans appeared with their captors, and several of the prisoners lunged against the bars.

At sight of the nearest men Knight jerked to a stop, horrified. A maimed face, almost as frightful as von Lehr's, twitched toward him. Beyond, he saw a man whose lower jaw had been shot away, and next to him a captive whose eyes were almost buried deep in scar tissue where ugly wounds had healed, disfiguring his countenance. The cell was filled with human derelicts.

"SO NOW, Herr Knight," Deroux said harshly, "you see the answer, if it gives you any pleasure to know it."

"You monsters!" whispered Knight. "You did this to those poor Frenchmen?"

"Nein, certainly not," snapped Deroux. "We Nazis are not butchers. They got those wounds in the First World War—like Rene Landrau, whom von Lehr impersonated to get in here."

There was a sudden scuffle in one of the cells, and a voice cried out hysterically.

"For God's sake, let us out of here! These men are insane!"

It was Wade, his ashen face pressed against the bars. Back of him Knight saw Ben Morton, with a bruise on his cheek from a recent blow. At Wade's outcry, one of the maimed Frenchmen spun around, raised his right arm and Knight saw that the forearm was gone, replaced with a leather contrivance that ended in a steel hook.

"Insane—you call us insane, by *le bon Dieu!*" snarled the mutilated pilot. "What would you be if you had to live on hate for twenty-one years—with this hideous face and a hook for an arm?"

Ben Morton pushed him back, but with a pitying look in his eyes. "The boy meant nothing, *mon ami*—he's at the breaking point."

Deroux looked at Knight, laughed mirthlessly at the sickened look on the Q-Agent's face.

"So you had no suspicion, after all? I was afraid you might guess, after you saw von Lehr with the mask of



Rene Landrau. You see, my meddling *Amerikaner*, it was Landrau who formed this secret squadron of living dead—the men who lived behind masks of their former faces, or stayed in hiding and let all but French Intelligence think they died in the First World War. Luckily, as a trusted agent of the Surete, I learned in time of their plans for a 'suicide squadron'—and enabled von Lehr to take Landrau's place when these human wrecks were ordered here."

The whole evil scheme was at last clear. As the leader of the maimed pilots, Landrau would be the one having most of the contacts with the French staff officers in the headquarters below. A man with a normal face might be in danger of exposure if his mask should slip, or his identity be questioned. But von Lehr, with his face also a ruin, had been able to play that grim role safely, perhaps after

purposely exposing his mutilated features on some occasion, so that neither he nor the Nazis who wore the white masks would thereafter be suspected in the least.

Between the two of them, von Lehr and Deroux had brought other Nazis into the base, probably on forged orders available to the treacherous Intelligence officer, until there were enough spies to seize control of the underground squadron.

The cell guard had jumped to his feet as he saw Deroux and the others. He took the keys from his belt, looked inquiringly at the spy.

"Put them in with the other *Amerikaners*," ordered Deroux. "Here, give me the keys. You had better cover them with the machine-gun."

The guard took a Bren sub-machine gun from a rack, stepped aside while Deroux fitted the key to the lock. Knight flashed a desperate look into the cell, trying to catch the eyes of the man with the steel hook. Just as Deroux turned the key, the maimed Frenchman caught Knight's tense gaze. The Q-Agent flicked a hasty glance down at the gun in Wolfe's hand. Something—was it understanding of that desperate look?—came into the Frenchman's eyes. With a prayer that it would work, Knight suddenly hurled himself against Wolfe.

The hulking Nazi thudded against the bars of the cell. With a howl of triumph, the maimed Frenchman flung the steel hook between the bars and caught the German's wrist. The pistol dropped from Wolfe's hand as a scream of pain burst from his throat, and in a split-second Knight had the gun.

The cell-guard whirled, gave a wild shout for Deroux to jump aside. Knight pumped two shots at the guard just as Deroux dived to the floor, and the German toppled to the concrete. Bieckert leaped back for a frantic shot. Knight sprang across the falling Nazi, but before he could get a clear aim Doyle's fist slammed furiously under Bieckert's jaw. The gun blazed, but the shot clanged harmlessly against a cell frame. All of Doyle's pent-up rage went into his second blow, and Bieckert crashed with terrific force against the cell-block. There was a crunching sound as his head hit the bars, and he sagged in a twisted heap.

Knight's attention was distracted for only a second or two, but when he whirled back Deroux was almost to the turn in the passage, running for his life. He fired, but missed, and Deroux vanished around the turn. Snatching up the keys, he swiftly unlocked the cell in which Morton and Wade were imprisoned. Wolfe was sliding down against the bars, his throat in the grip of a shrieking Frenchman who had reached through and seized him while the man with the steel hook held him pinioned.

"Let the rest of them out!" Knight shouted at Morton. "I'll try to stop Deroux!"

He raced after the renegade. Mo-

tors were roaring at half-speed, warming up, when he reached the hangar space. He saw Deroux running wildly toward a little group of mechanics, trying to make himself heard above the din.

SUDDENLY von Lehr and five or six pilots burst from the hall that led to the stairway. In his left hand von Lehr had a hastily folded map. Two of the men with him had been wounded; Knight saw one of them stumble and grasp at his blood-stained tunic.

The raid on the underground headquarters had already been made. With a start Knight realized that von Lehr had the priceless key map to the entire Maginot Line!

Von Lehr spun around, glaring through the slits of the celluloid mask, as he saw Deroux's wild gestures. The false *capitaine* stabbed one finger frenziedly toward the door to the brig section. Von Lehr looked, clawed for his holstered gun as he glimpsed Knight.

The Q-Agent jumped back, triggered a quick shot. Von Lehr leaped behind an idling Delanne, and the snout of his pistol flicked into sight for a swift answer. By this time the rest of the Nazi spy-pilots had emerged from the stairway door, and three or four guns were blazing. Knight flattened himself against the wall just inside the doorway, and the hail of slugs against the concrete momentarily ceased.

A wild yell from behind made him jump. The next instant one of the maimed French veterans leaped alongside him, the machine gun cradled in his arms. Back of him came Doyle and Morton, with Wade lost in the crowd of mutilated pilots released from the cells.

"To the left!" Knight shouted, and the muzzle of the gun jerked in response. Two of the Nazis fired frantically, then the gun burst into a clattering roar, and they tumbled to the hangar floor. Knight sprang out beside the Frenchman, dropped a spy-mechanic who had scrambled up to the rear-pit guns of a Potez.

A dozen Germans went down under the spouting Bren gun, and the rest fled for shelter. Knight saw von Lehr tumble into the front pit of a Delanne and Deroux vault into the rear cockpit. The hillside door had already been opened, ready for the spies' escape. Von Lehr stood up for an instant, pointed furiously to a switchboard near the entrance. Doyle's pistol flamed, and a bullet-hole appeared in the Delanne's cockpit enclosure. Von Lehr threw himself down at the stick, and the two-seater thundered out onto the runway.

The slipstream of the full-out motor almost blew Knight from his feet. He clutched Doyle's arm.

"Grab a Hawk!" he bellowed. "Stop that devil!"

Doyle raced toward a fighter, shot down a helmeted Nazi who tried to reach the ship first. Knight was halfway to another Hawk when the lights

suddenly went out. He thudded into some one, flung the man aside and fumbled his way to the ship. Two bright beams lanced out near the entrance; Doyle had switched on his wing-lights in order to taxi out. By the glow, Knight saw the chock-ropes, gave them a jerk, ran back to free the wheels of the other ship. One of the maimed Frenchmen saw him, pulled the chocks and boosted him up to the step.

Another flurry of shots followed, as the maddened Frenchmen seized guns from the fallen Nazis. Knight saw one of the Germans swing the rear-mount of a Potez, and tracers smoked past the Hawk's wing. He ducked, opened the throttle, and the fighter lunged for the entrance.

The Hawk plunged through, prop-blast shrieking past the half-opened enclosure. Knight dragged it shut, latched it. The runway was faintly illuminated by Doyle's lights, which were now tilting up as Doyle pulled into a sharp chandelle. The tip of a wing flashed into the light-beams, and Knight saw the Delanne nose down from a dangerous zoom. Doyle's cowl guns flamed, but von Lehr whipped aside and the burst missed. Briefly silhouetted in the glow, Knight saw Deroux swerve the rear-pit cannon toward Doyle.

"Lothario!" groaned Knight. "Cut off your lights!"

But Doyle kept the lights on, while he hastily banked in the attempt to spot the two-seater. The Delanne abruptly cut in, the Madsen cannon tilting down at the Hawk. Knight's guns broke forth with a furious chant, and the tracers flung across the Delanne's tail like fuzzy, red-hot wires.

With a miraculous turn, von Lehr saved himself from instant annihilation—but not so Deroux. One of those fuzzy red trails stopped short at the side of the treacherous *capitaine*, and Deroux slumped over the breech of his cannon.

Before Knight could swerve his tracers to rake the pilot's cockpit, von Lehr's lightning turn put him between the two Hawks, with Doyle's ship nosed away. Knight helplessly let up on the gun-control button. He was almost certain to hit Doyle, even if he did score on the Delanne.

Flame blossomed out below, and Knight saw a Potez crash to the ground, with a Hawk circling above it. By the glare, the Delanne was suddenly a clean-cut outline, its double wing whipping around toward the Q-Agent's ship. Knight slammed the stick back and snapped into a fierce half-roll at the top of the climb. Von Lehr, his target lost, was darting back to the East toward Germany and safety.

DOYLE'S HAWK whirled out of the semi-darkness to the South, but a second Potez cut across his path, guns blazing as the escaped Nazi crew sought to protect their leader and save the stolen map. Knight sent his fighter screaming down the sky, his

fingers close to the stick buttons. Von Lehr jerked around in his seat, made a futile effort to kick away from Knight's guns. The cockpit enclosure vanished as though jerked away by an unseen hand. Von Lehr's masked face showed for an instant in the flamer's glare—starkly handsome, rigid, unmoved. Then the crashing bullets struck.

The spy half-rose, twisted back in a beaten, riddled heap, and the wind through the uncovered cockpit tore the mask away. Knight had a fleeting glimpse of that dreadful maimed face—then the Delanne, freed of control, nosed down and went headlong into the ground.

Knight banked hurriedly to aid Doyle, but his help was not needed. Its tail a battered wreck, the bomber was fluttering down in a spin. He looked around carefully, but the two Hawks flew alone in the sky. No more of the spies had escaped. Knight signaled, went down for a quick landing, with Doyle close behind him. A hundred feet from the entrance to the base, he climbed out, stared in warily with his pistol ready. Then he saw there was no more need for caution.

Lined against the wall, sullenly submitting to search, were the rest of the Nazi spy-pilots and mechanics. In front of them was a group of grim-faced French staff officers and *poilus*, and a little farther back the maimed veterans. Most of the American pilots from the other half of the base were in the background, staring at the scene.

Ben Morton was talking with an excited Staff Officer who had the insignia of a brigadier-general. When Knight appeared, two armed *poilus* ran toward him, but halted at a gesture from the general.

"This is the man, General," Ben Morton said. "He's the one who saved us. His name is—Mr. King."

"*Merci! Merci!*" the general said gratefully. "I have heard all—*Monsieur* Morton stopped these Nazi pigs from blowing up the place just as we arrived." Then his face fell. "But they have still won—the map, it is an irreparable loss."

Knight smiled. "Take a look out there, General."

He pointed into the distance where the Delanne lay, a complete wreck.

"You'll find the map—what's left of it—in there," he said.

Tears of joy came into the French officer's eyes.

"Thanks to *le bon Dieu!* And to you, *Monsieur* King! France will reward you for this night's work! Yes, and should you wish to remain with us, *monsieur*, we will make you a *capitaine*."

"Thanks a lot," said Knight. "If things get too tough maybe some day I'll take you up on that."

* * * *

IT WAS after dark, but behind the blacked-out windows of the Crillon bar there was a pleasant clinking of glasses and a hum of voices.

"You know," said Knight, "this isn't such a bad war, after all—from

where I'm sitting."

"Yeah," grunted Doyle, "and you're sittin' a lot prettier than you were last night. I'll say this—for us it sure was a fast war while it lasted. Well, here's mud in your eye."

Knight lifted his glass, paused as a shadow fell across their table.

"So!" hissed a voice. "You didn't go to that volunteer squadron as you agreed!"

Knight looked up, saw the irate face of Captain Rodman. He put down his glass, flicked an imaginary speck of dust from the sleeve of his civilian coat.

"Who's your friend, Doyle?" he

queried.

"Dunno, total stranger," said Doyle.

"You—you idiots!" Rodman said hoarsely. "I'll have you—I'll prefer charges—" he stopped short, as a sallow-faced young man came hurrying into the bar, looking anxiously from right to left.

"Captain Rodman!" said the youth, in an excited whisper. "A big German spy nest was found based beside that volunteer squadron! That whole matter's been cleared up—Nazis were responsible for dropping those forged messages—" he lowered his voice as he saw Knight and Doyle, whispered

the rest.

Rodman's eyes bulged. He stared at Knight, incredulously.

"B-but how?" he stammered. "It was only last night—"

"Your friend sounds a little pifficated," Knight told Doyle.

"Blotto, if you ask me—and he ain't any friend of mine," retorted Doyle.

"Look here," moaned Rodman. "The message said two new men were responsible—two men named King and Downs."

"Never heard of them," said Knight. "It was probably a couple of guys named Joe."

Happy Landings

(Continued from page 29)

You will flop with Herr von Ribbentrop,

So run, Adolf, run Adolf—run, run, run!

And, of course, many of you have heard how they are singing about the Siegfried line. That ditty goes:

We're going to hang out the washing on the Siegfried Line;

Have you any dirty washing, Mother, dear?

We're going to hang out the washing

on the Siegfried Line,

'Cause washing day is here.

Whether the weather may be wet or fine,

We'll just rub along without a care.

We're going to hang out the washing on the Siegfried Line—

If the Siegfried Line's still there.

It's all quite droll. And who says the British haven't got a sense of humor? But there's nothing quite so funny as the newspapers calling every clash in the air between a bomber and a fighter a dogfight! A dogfight,

we'll inform these gentlemen, is a mad action in the air in which a great flock of planes clash, and where there is no formation, no tactics, and no pre-arranged plan carried out. They simply slash in and out, shooting at anything that appears to be an enemy.

That's a dogfight, and there were only three first class ones during the course of the whole World War. But there have been a hundred "dog-fights" since the new European conflict began—according to the newspapers.

"Skyrocket" Gas Job

(Continued from page 45)

Now that you have the fillet cemented in both corners, glue along the edges. And after all sides are cemented down securely, five or six coats of dope will make it drum-tight and consequently make the entire rudder joint stringer.

ASSEMBLING THE "SKYROCKET"

FIRST off, give the stabilizer two degrees of negative incidence and the wing two degrees positive. The motor is left in a neutral position, since the incidence angles are measured from the thrust line.

To make sure that you have the correct amount of incidence, line-up the surfaces with the use of a line parallel to the side thrust line. In

reference to this line raise the trailing edge of the stabilizer 7/32" more than the leading edge and the leading edge of the wing 5/16" more than the trailing edge. This will give you two degrees positive incidence on the wing and two degrees negative incidence on the stabilizer. The wing and tail are held in place with rubber and will free themselves if an abrupt landing or a sudden stop occurs.

FLYING

AFTER you are certain your angular settings are the way described, you are ready for a test hop. The balancing point is 3 1/2" back from the leading edge. Vary the position of the batteries until that bal-

ancing point is achieved.

The model should glide perfectly when balanced properly, and only the wrong angular settings on the wing and tail will prevent long, smooth, flat glides. But if the ship tends to descend steeply, check the stabilizer and wing adjustments.

If everything is now okay, set your timer for twenty seconds, rev-up your motor, and point the nose of your "Skyrocket" into the wind. She'll take to the air in short order if the instructions presented here have been followed carefully, will climb just like a real Fourth of July skyrocket, and will set-down gracefully to a realistic three-point landing! What's more—she'll do it every time!

News of the Modelers

(Continued from page 41)

S. Smith, Washington, 33 sec. Class "B"—Senior, Charles Kaman, Washington, 25.2 sec. Fuselage, ROG, Class "B"—Senior, William Hayes, Syracuse, 8 min., 29.2 sec. Open, Jean S. Chadwick, Syracuse, 7 min., 57.6 sec. Class "C"—Open, Joseph Matulis, Chicago, 12 min., 7.6 sec. Helicopter—Junior, Robert Crowley, Chicago, 2 min., .4 sec.

Outdoor: Stick, H.L., Class "C"—Senior, Edward J. Swenton, Syracuse, 11 min., 37.3 sec.; Open, Ira J.

Fralick, Syracuse, 4 min., 27.5 sec. Class "D"—Senior, George Kesel, Liverpool, N.Y., 4 min., 33.1 sec. Class "B"—Senior, Christian D. Berger, New York, 2 min., 20.6 sec. Tow-line Glider, Class "D"—Junior, Oscar Boyajian, Hartford, Conn., 1 min., 30.9 sec. Fuselage, ROG, Class "C"—Junior, Robert Romeisen, Indianapolis, 5 min., 52.7 sec.; Senior, George Reich, Cleveland, 8 min., 35.5 sec.; Senior, Wallace Simmers, Chicago, 14 min., 1.2 sec.; Open, Dick

Everett, Elm Grove, W. Va., 2 min., 3 sec. Class "D"—Junior, Lawrence Cowell, Pontiac, Mich., 5 min., 8 sec.; Senior, Robert Toft, Minneapolis, 12 min., 45.3 sec.; Open, V.C. Davis, Houston, Tex., 8 min., 47.1 sec.

Fuselage, ROG, gas-powered, Class "A"—Open, Louis Garami, Woodside, N.Y., 2 min., 10.4 sec. Class "B"—Senior, Raymond M. Dresskell, Miami, 4 min., 3 sec.; Open, Walter Addems, Chicago, 5 min., 24 sec. Class "C"—Senior, Wil-

liam P. Selby, Little Rock, Ark., 11 min., 18 sec.; Senior, Albert Carlson, Salt Lake City, 15 min., 35 sec.; Open, Ken Carter, Nashville, 14 min., 28.7 sec.; Open, Dewey Bonbrake, Houston, 22 min., 33 sec. Unlimited—Senior, Daniel J. Veronica, Syracuse, 17 min., 32.9 sec.; Open, Clarence Quillan, Syracuse, 8 min., 20.8 sec. ROW, Class "C"—Senior, Sal Taibi, Brooklyn, 1 min., 7 sec. Unlimited—Senior, Martin Nemirofsky, Philadelphia, 1 min., 16.5 sec.; Open, G. E. Sherrod, Chicago, 36 sec. Helicopter—Senior, George Lambros, St. Louis, Mo., 47.3 sec.

More records are pending and will be announced at a later date. But here are some categories in which no records have been established:

Indoor: Stick, H.L., "B"—Jr., Sr., Open; Stick, H.L., "C"—Jr.; Stick, ROG, "A"—Jr., Open; Stick, ROG, "B"—Sr., Open; Stick, ROW, "A"—Jr., Sr., Open; Stick, ROW, "B"—Jr.,

Sr., Open. Glider, H.L., "A"—Jr., Open; "B"—Jr., Open. Fuselage, ROG, "C"—Jr., Sr.; ROW, "B"—Jr., Sr., Open. Helicopter—Sr., Open. Ornithopter—Jr., Sr., Open.

Here's a chance for you fellows who've been hankering for a record tagged alongside your name. So get busy and build a ship this winter for an unestablished category and take a shot at a national record.

Moran Sets Mark

DOUGLAS MORAN, it is believed established a new glider record at the Allegheny Mountain Area Model Championships held in Pittsburgh September 17 with his flight of 3 min., 10 sec. Notification has been sent to the NAA. Results of the meet:

Gas: First, John Lyon, Butler, Pa.; second, R. E. Groh, Dover, Ohio; third, Bill Blair, Pittsburgh. Fuselage: First, Peter Bila, Alliquippa,

Pa.; second, Moran Day, Irwin, Pa.; third, Jack Thames, Pittsburgh. Stick: First, Owen Niehaus, Rochester, Pa.; second, Douglas Moran, Irwin; third, Edgar Fulmer, McKees Rocks, Pa. Glider: First, Douglas Moran, Irwin; second, Joseph Boyle, Coraopolis, Pa.; third, Bud Saunders, Irwin.

Allentown Winners

IN the gas model meet held in Allentown, Pa., September 17, winners were as follows:

Class "A": First, J. Findra, New Brunswick, N. J. Class "B": First, Helen Leister, Boyertown, Pa.; second, Robert Krug, Reading, Pa.; third, R. Ferrario, Scranton, Pa. Class "C": First, Robert Krug, Reading; second, Frank Antosh, Scranton; third, Rudolph Stap, Philadelphia. Worst Crack-up: Ralph Senter, Overbrook, Pa. Best flying: Herb Drake, Easton, Pa.

Youth Air Movement News

(Continued from page 28)

Floyd Bennett Field, N. Y., will be continued throughout the winter. Grads, you know, go to Pensacola . . . American Airlines recently announced 20 openings for air stewardesses—and got 5,000 applications! . . . Harvard has launched a new graduate department of aero engi-

neering. A few scholarships were available for the advanced study and research offered . . . Recent assignment of 542 young men for military flight training represented the largest increase in the history of the officer personnel of our Air Corps. Of this group, 149 were from West Point,

amounting to 33 percent of the membership of the Academy's class . . . In its present full-swing production, the Piper company turns out a Cub plane every 70 minutes! More than 70 percent of the aircraft produced in the U.S. are light planes, and last year Piper made half of these.

On the Light Plane Tarmac

(Continued from page 34)

A few minutes later I was watching a Hawker Hurricane zip over the waterfront at 300-plus m.p.h. Well, I realized that the insignificant little Cub had done something the Hurricane could never have done in the same emergency. Hats off to the light plane!

I may say in conclusion that the

little light plane stunt was carried out successfully later.

ROSS SMYTH

Toronto, Ontario, Can.

Yes, the ability of the light plane to take it and come back a-flyin' is what's building up our great sport. And now we'll take leave—No, wait

a sec. Before we sign off, let's add an editorial thought brought to mind by this letter. That is that we hope stunts like cranking props from undercarriages in mid-air will quickly become more and more conspicuous by their absence. It'll be a lot better for light plane progress—and we're sure Ross agrees with us.

Warplanes Pack Punch!

(Continued from page 11)

them once the chemicals combine to produce their terrific flames.

With steel and concrete playing such a great part in defense, the munitions designers have had to provide bombs that will penetrate these defenses before breaking up and exploding. Thus they have had to thicken the casings and devise new delayed-action fuses. This cuts down on the explosive content to some extent, but it does the work.

Bombing experts have also discovered that "eggs" must hit directly perpendicular to get the best results, especially in cases where surface attacks are being made. They have found through tests that when a bomb hits at an angle it sends its shrapnel deep into the ground on one side and high over the heads of the enemy on the other. So now we are finding new designs in vanes to help achieve what

you might call perpendicularity. Moreover, we'll probably see more bombs fitted with some kind of parachute arrangement to assure their hitting with their noses directly down.

THE FRENCH appear to have a long jump on the rest of the world as far as high caliber gunnery is concerned. To be sure, their planes do not compare with the best of the Germans or the British as to speed and streamlining, but they have certainly made up for all that with armament. Yes, they seem to be doing very well.

Their Dewoitine D-513 carries four rifle-caliber machine guns and one 20 mm. Oerlikon cannon. The Loire-Nieuport 46 does 250 top and carries either two Oerlikon cannon or four fixed machine guns. The Potez-54

bomber has an Oerlikon gun in the nose, two movable machine guns in a rear upper turret, and two more in a retractable turret which can be lowered under the fuselage. The Dewoitine D-510 uses that striking Hispano-Suiza engine in which is incorporated a 20-mm. shell gun. And there are four fixed guns in the wings. Another Loire-Nieuport, a single-seat fighter, carries a motor-cannon plus two Darn guns in the wings. Their Breguet 462B-4, a multi-seat bomber, carries an air cannon and several other guns. The Latecoere torpedo plane carries at least one shell-gun or air cannon. The Morane-Saulnier 406 single-place fighter is regularly fitted with one 20-mm. cannon and two Chatelleraults in the wings.

Thus, it will be seen that France, more than holding her own on the

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MOTOR IS COMPLETE WITH SMITH COIL. CHAMPION SPARK PLUG AND CONDENSER.
 The GNAT is the most powerful, easy starting, smoothest flying engine of its class. Bore—3 1/8" stroke—5". R.P.M. 7500. I.P. 1 1/2. Weight—3 1/2 lbs. Displacement 150 cu. in. Will fly 1/2 wings up to 2 1/2 lbs. with 5 1/2 ft. wing span.
 Price of Motor, if bought separate. Postpaid... **\$7.95**

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 1592 Lincoln Pl., Dept. F-1, Brooklyn, N. Y.

Western Front, is not backward in giving her pilots and observers the best that can be obtained in the way of armament. The air cannon, still something of a novelty in the United States and Great Britain, is a common feature on French machines.

Over here we do a lot of talking about air cannon, but one rarely sees an actual, high-caliber weapon on any American plane. It is all very well to show us pictures of air cannon and provide exhibitions on them at the New York Fair—but we'd actually like to see some mounted on our serv-

ice planes.

We didn't notice a single one at the opening of the North Beach Airport—though there were enough military planes there to start a first-class war.

Or are we running into the secrecy gag again?

Meanwhile, the U. S. arms embargo has been lifted, meaning that great fleets of American military jobs will be poured across the ocean. So Hitler's lot is not to be envied. His air service is facing the formidable multi-gunned opposition of three leading sky powers.

Contraband Cocardes

(Continued from page 24)

on? Had she brought another outfit? If so, where was her over-night case? She always left it in this room.

Keen went downstairs slowly, pondering on the whole situation. He wondered why she hadn't left a note of some sort and decided to have another look around. He'd put the Mick on a search for the over-night case, too. She might have put that in a downstairs closet.

But no matter how thoroughly they scoured the place, there was no answer to the mystery of the blood-stained wall, the bloodstained cap, or the Royal Air Force coat with the handkerchief and platinum vanity case in the pockets.

THE RADIO continued to wrangle throughout the night on the subject of the British plane's raid on Governors Island. The commentators were furious in their denunciations. A statement was made in cold clammy terms from official Washington. Another came direct from London, stating emphatically that no British torpedo-carriers were in that vicinity.

Canada was likewise approached, and it was learned that one squadron of the Fleet Air Arm of the Royal Canadian Air Force used Blackburn Sharks. But it was pointed out that this outfit was still in training, and being located on the West Coast could not possibly have carried out the attack. The Dominion stated no Shark torpedo-carrier had been in the air for days owing to inclement weather.

"Someone's pulling a clever gag," mused Keen, selecting a pipe to help him think while Barney struggled with the mess of papers all over the floor. Suddenly he got an idea. How did Pebbles get to Graylands?

He went outside—and found Pebbles' car. It was evidently just as she had left it. He opened the door, peered inside, and jerked as he spotted a white envelope on the seat. He slipped inside, turned on the dash light, and fingered the envelope. It had the girl's name written across it in very-very secretary-de-luxe style. He took out a white card, and found some very elegant printing on it—an invitation to the annual fancy dress ball of the Southampton Country Club. It bore the names of Miss Barbara Colony and Squadron-Leader H. G. Matin.

"Now we're getting somewhere," Keen muttered, rubbing his chin. "She was going to a fancy dress party with some Limey Air Force guy."

He sat pondering on it for some time, then decided to get in his car and go to the party himself. They might be there, at least one of them. And he might get some idea of what had happened. But who the deuce was Squadron-Leader Matin, and what was he doing tooting about a neutral country in uniform?

Without giving the matter much further thought he decided to take Miss Colony's car. He snapped the starter, since the key was already in the switch, and let in the gear. He rumbled down the drive, went

through to Route 27, and turned southwest. From that point on he scorched the roads all the way to the Southampton Country Club.

As he drove into the winding drive of the smart layout, he wondered just what had made him make this decision. He had no idea what he could do when he got there. He drove to the club and sat pondering.

The party was well under way by now and no other cars were coming in. A few couples were huddled outside in coats and wraps, getting a little air and enjoying cigarettes, and as Keen watched them he wondered just what move he should make to find out what he wanted to know.

Then, before he could make up his mind, a fairly tall, smart-looking man dressed in a very musical-comedy version of a Swiss Alpine dandy—complete with gay shirt, leather shorts, heavy woolen stockings, and gaudy braces—came clattering down the steps. He looked at the license of the car, then came to the open window on the driver's side.

"I say," he asked with a smile. "Is this Miss Colony's car? I've been waiting for her. Has she gone in?"

"It's Miss Colony's car," agreed Keen. "But I'm looking for her, too. By the way, are you Squadron Leader Matin—her escort?"

"Yes. You see, she went off somewhere to change. She borrowed one of my uniforms, since she had no time to get a costume. But she hasn't returned."

"I see," said Keen peering through the windshield. "Here, you'd better get in here. It's cold out there. Now then, my name is Keen."

"Kerry Keen? Not the ballistics chap Miss Colony has mentioned?" the Englishman asked, as he climbed in and sat down. "Jolly glad to know you," he said when Keen nodded. "But where is Miss Colony?"

"That's what I'd like to know," said Keen. "She evidently came to my place while I was out, changed her clothes—then disappeared. You don't know anything about that, do you?"

"Good Lord, no! Just as I said, she borrowed a uniform of mine, and—"

"Yes! The great-coat and cap are still over there. But Miss Colony is missing. I found this invitation on the seat of her car, which gave me the idea of coming over here. By the way," Keen went on, snapping on the switch of the car radio, "have you heard about the raid on Governors Island?"

"A raid? What sort of a raid?"

"A torpedo raid. Carried out by a British Blackburn Shark. Unloaded a torpedo—but it didn't go off. There's been news on the radio about it every few minutes. Listen—"

From the radio speaker came a new announcement: "... And the British officer wearing a British Royal Air Force uniform and a flying helmet, has been seen at North Beach, Floyd Bennett, and now at Newark Airport. He escaped in a car in the heavy traffic on the Pulaski Skyway. There is no further news of the tor-

pedo outrage, but the Coast Guard and several Naval squadrons are attempting to discover the base of this British plane. Official feeling is high in Washington, and it is believed that another note is already being worded for transmission to London."

Keen and the Englishman sat staring at the dial, as music now came through.

"Well, they accomplished what they set out to do, you see," the Britisher said.

"Who accomplished what?"

"The Germans! Don't you see it, old chap? This is a Nazi move to break off all pleasant relations between Britain and the United States!"

For a moment, Keen stared at the Englishman puzzled. But he liked this fellow. He was clean, upright in appearance. He spoke well and he looked like a splendid officer. Yes, Keen had a lot of respect for Miss Colony's choice. "Do you actually mean that?" he asked quietly.

"Sounds a bit silly, doesn't it? British Sharks and all that sort of thing. Plus a British officer appearing and running away from aerodromes in this area. But haven't you asked yourself already who is this bloke in a British uniform popping in and out of American fields? Who can it be, but one person?"

"Who is it?"

"Well, it stands to reason that if a British officer wanted to spy around in that way, he would hardly dress up in a sky-blue uniform complete with Squadron Leader's rank braid and wings, would he?"

"How do you know he's a Squadron Leader?" asked Keen. "They didn't say so on the radio."

"But don't you see?" the Englishman pleaded. "That's *my* uniform—and the 'officer' wearing it is Miss Colony!"

KEEN slapped his thigh. "What a dumb-bell I am! Of course! Someone captured her and they are putting on a gag. And the helmet idea is to cover up her hair. But why?"

The Englishman didn't answer. He, too, sat staring into space, looking rather silly in his feathered Alpine hat cocked on one side of his head.

"And just what are *you* doing here in the United States?" asked Keen suddenly.

"I'm on the Consul General's staff in New York. My job just now is to interview ex-flying Britishers who have been worrying the Consul to get them passage across so that they can join up again."

"I see. But why did you say 'they accomplished what they set out to do'? That sounds as though you had expected such a thing."

"We did. You see, we know where those Sharks came from. They were being shipped to the Spanish Loyalists just before the war in Spain ended. A very queer thing happened then: The vessel carrying these aircraft never reached Spain and has never been heard of since. It was a

Danish boat. As I say, we never discovered a trace of the planes anywhere, nor of the vessel that carried them. Of course, we feel that they fell into the hands of the Nazis."

"And some Central Power spy outfit is using them with British markings—to create a breach between Britain and the U. S.?"

"We are certain of that."

"All right. I grant you that possibility. But where the devil are they working from? Sharks have wheel undercarriages so they must be based somewhere on the land. Germany, of course, has one aircraft carrier—but she's not yet in commission. So where do we go from here?"

The Englishman had a twinkle in his eye, but he didn't answer.

"What's the idea?" demanded Keen.

"Nothing—nothing much. I was just wondering how Miss Colony came

Ballistics, and all that sort of thing, you know."

There was no answer to this. It was evident that this Englishman knew a great deal more than he was letting on, and it was not wise to stay in conversation with him too long. Still Keen felt he should make one more effort at an idea that had occurred to him.

"What's the range of the Shark?" he asked suddenly.

"Well, on the safe side, about 500 miles."

Keen frowned. "Well, it's not likely that they would have a land base anywhere on the U. S. mainland, is it?"

"You're getting on the right track now," the Englishman smiled.

"A certain German vessel had a Heinkel catapult, didn't she?" continued Keen quietly.

The Englishman continued to look out of the windshield, but Keen could see him smile—and he was sure he also spotted a nod.

"That's all I want to know," said Keen. "And now I'd better buzz along."

"But what about Miss Colony?"

"We'll see about Miss Colony later on. As a matter of fact, I'm not worrying much about her. I'm worrying about the birds who have captured her. I'll bet they're having a rather rough time."

The Englishman shook hands with Keen, got out of the car, and stalked up the steps of the club. Keen snapped the starter and let in the clutch.

SCRAWNCHING down the driveway, the car passed a wall of tall cedars, and came suddenly on a glistening sedan car that appeared to have stalled on the way out. A man was leaning over the open hood, so that Keen had to come to a full stop to avoid striking him. Keen's first instinct was to offer assistance—but he found this was another matter once he had stopped. Someone came from behind, laid the heavy blue barrel of an automatic on the sill of his door, and said: "Okey-doke! No clatter now. Get out and climb in the other machine."

The man at the front of the sedan calmly pulled the hood down, locked it, and climbed in behind the wheel. And now Keen sensed that he had stepped into something more than he'd bargained for. He gave a quick glance through the window at the back of the sedan, and when he caught the outline of a figure wearing a flying helmet he quickly understood the layout.

"It's a nice night, isn't it?" said Kerry with a cheery grin. "Nice piece of shooting equipment, too, you're holding in your hand there. Where's the wheels that go with that cannon?"

"Never mind the gag play. Get in that car before I massage your skull with the butt end and leave my initials on your dome," the guy with the gun said. And Keen knew he meant it.

He was shoved between the two cars and around to the side door of

Answers

TO QUESTIONS ON PAGE 25

- 1-Dornier Do. 18's—converted mail planes—were used as bombers in the raids on Scapa Flow.
- 2-The Flak 88-mm. is the chief German A-A weapon.
- 3-A "cadre" squadron is one made up of a small proportion of regular Army aviators and the rest Auxiliary Air Corps personnel.
- 4-The 21st annual edition has just been released by the Aero Chamber.
- 5-Sir Kingsley Wood is the Air Minister of Great Britain.
- 6-The new Bofors 3.7, a Swedish weapon, is currently considered the finest A-A gun in the world.
- 7-There are four American warplanes now in service in Europe. The British use the Lockheed Hudson and the North American Harvard. The French use the Curtiss-75 and the Douglas bomber.
- 8-The Porterfield Model 50 sells for \$1,495. It can be purchased on a time-payment plan for \$480 down and the balance over twelve or eighteen months.
- 9>About 125 Lockheed Hudsons went to the British before the embargo became effective. Many of them went to Canadian squadrons.
- 10-Thirteen Bell Airacudas have been ordered by our Air Corps.

to be snatched at your place. She was picked up there, wasn't she?"

This time, Keen didn't answer. He was thinking hard, too.

"They really came to get something, didn't they, Keen?" prodded the Briton. They just happened upon Miss Colony, who unfortunately was there in a British Air Force uniform. They came to get something—something of importance, didn't they?"

"If you could have seen my den, you would have thought so," Keen grudgingly admitted.

"I hope they didn't get it."

"They didn't. I shipped it back the day before."

"Good stuff! We'd hate to see them get that."

"Then you know?"

"About the new fuse for anti-submarine bombs? Yes, I know about it. But I was only guessing that it was you they had sent it to for an opinion.

the sedan, with the hard end of the automatic pressing just above his right kidney. He caught the startled face of Miss Colony sitting stiffly in the back seat.

"Hi, Princess!" he beamed. "How's our little Flying Corps gal?"

Before Pebbles could answer, the guy next to her gestured with his gun that she should keep quiet.

"She ain't talking, Keen, and you close your trap, too—until we get back to that barn of yours."

"Oh, are we going *there*?" asked Keen, settling down beside the girl. "I've just left there. Can't we try a nice roadhouse?"

At this, the man who followed Keen into the car brought his heavy gun down across one of Keen's knee caps and made him wince. But he was smart enough to make a last statement: "All right, you win! I won't pull another verbal barney."

As he said the last word, he significantly touched his foot against Miss Colony's ankle, hoping she'd catch the double meaning he intended. He prayed, too, that the Mick had his thinking cap on that night.

"Now listen, Keen. We'll do *all* the talking. You keep your trap shut—and listen."

Keen nodded, thinking fast. He remembered that in a short while a certain radio program would be broadcast over one of the popular stations.

"We bin to your joint, Keen," the man went on, punctuating his remarks with his gun. "We went to get a blue-print, but we couldn't find it. We run into this jane in the pretty-boy makeup—all tricked out to go to a fancy dress ball, see?"

Keen nodded, glancing at the clock on the instrument board and hoping it was right.

"We don't know where you were, or how you got back, since your car was still in the garage. But to play it safe we had to beat it because this femme tells us you're expected in at some airport, and we don't know which one. She pulls a fast one on us, see? Well, we go to North Beach and she tries to jump out and start squealing, but we yank her back and she admits it was Floyd Bennett, and there ain't nothing doing there, and she tries this run-away business there, so we take a chance on Newark and run into cops who seem to be wise to us. How they got that way, we don't know, cause this jane ain't bin to no 'phone or nothing . . ."

"And you ain't never bin to no school, neither," added Keen unable to resist the gag.

"Pipe down, before I bust your face in with this gun, Keen. I bin to enough school to know I got a guy like you beat."

Keen was mulling over all the crazy situations of the evening and trying to make them dovetail somewhere. He sensed now that these men had nothing to do with the torpedo business. They were after something else entirely and they were probably ignor-

ant of what had happened out at Governors Island.

The ungrammatical guy was still talking: "It's like this, see, Keen. You got a blueprint of something from the Navy Department in Washington. We know you got it—and maybe you got a small model of it, too, though that ain't in the contract. We just want the blueprint and everything will be hunky-dory and you and Little Nell here can pick up where you left off and swing yer flippers at the society brawl back there. Get it?"

"Sure, I get it—and I got it," added Keen, putting both hands over his kneecaps, just to make sure.

"Now your talkin', buddy. All we have to do, then, is to hustle along to your place—and there we are."

"There we are, and there you might be—if you're lucky," replied Keen.

"Look, brother," said the man soothingly. "Don't be a sap. You got nothing to lose. You have your joint raided like, and you miss a blueprint, eh? What can they do about it? They got another in Washington."

"Of course, but what do—I get out of it—and what do you get?" asked Keen tauntingly, playing for more information.

"I ain't doin' this for soap coupons, Keen. There's a nice chunk in it for me—when I get the prints. You? Well, you might get by without getting your skull blown in. Simple, eh?"

"Oh very—only you don't say how you get yours."

"The guy up front—the fellow what's drivin' this car. He pays out all along the line when we gets the paper."

"The guy up front? Then what are you waiting for—if he has the dough with him? You have a gun."

"Listen, Keen. You ain't that dopey are you? Suppose I bust him one now and take the roll. What can I get away with? There's other guys along the line who still stand to get their cut."

"All right, give it to 'em," argued Keen.

"You don't know these guys, Keen. I could give 'em ten grand apiece and they'd figure they was gypped somewhere, and soon turn me in. If this guy hands 'em, say, three grand apiece, its hunky-dory and the business is Oke. Get it?"

Keen had to admit there was sound reasoning to this, worked out on theories relative to the questionable honor among thieves. He also figured that if the cut was based on ten grand for this mug, and possibly three grand for the others, there should be some nice money up in the front seat. But he was now sincerely hoping that the clock on the dash was correct. He did not argue further with the guy with the grammarless gunman.

THEY were approaching the driveway of Graylands now, so Keen sat on tenterhooks. He could hardly suppress a low cry when he noticed that all the lights were out. He nudged Pebbles and said aloud: "I'm sorry you missed that barney tonight,

Pebbles." She nudged his knee back and her eyes told him she was on to the idea.

The car crawled up the curved driveway and came to a halt at the door. The driver dimmed his lights, got out, and opened the door on the near side. The man guarding Miss Colony alighted first from the back seat and waited until the girl got down. Then the talkative gent shoved Keen toward the Graylands door.

"No monkey business now, Keen," the man said. "You just open the door, step aside, and let Leo go in. The gal goes next, then you. See?"

Keen said nothing. He fumbled for a key, inserted it in the lock, twisted it carefully, and shoved the door open. Abruptly an agonizing scream rang through the house.

There was just enough light for Keen to glance into the eyes of Pebbles and see that she was strangely calm.

Another scream—unmistakably that of a woman—again shattered the stillness of the house.

"What the devil is that?" the talkative guy demanded.

"Why don't we go in and see? Sounds like a murder's being pulled," said Keen. And then he added: "You've got me talking that way now."

"What's going on in there? Go in, Leo, and snap on a light," came an order.

The man guarding Miss Colony stepped inside the gloom of the corridor. From somewhere inside there then came a dull "thock"—and the man went stumbling forward.

Another piercing scream rang out, followed by the muffled bark of a gun.

"Leo! Leo! What happened?" the man behind Keen yelled. "What the deuce is this, anyway?"

"Sounds terrible," said Keen anxiously. "We ought to go in and see what's going on in there."

"Hey, Krause," said the man behind Keen. "Go on in. You got a gat, ain't you? Go in there and turn on the lights."

Krause barged forward, head bent—then there was another dull "thock," followed by the stumbling steps of Krause. A child's voice now screeched out: "There it is. There's the body—hanging in that doorway!"

"Fer cripes sake," the talkative one growled, suddenly catching on. "It's only a radio program!"

"That's right," said Keen suddenly. "I left so quickly that I forgot to turn the radio off. Go ahead, Pebbles. I'll follow you."

He made the last few words very pointed and the girl darted inside, holding her hands over her head. Keen went next with a gun stuck in his back, tensely, too, for men with guns can do strange things under the impact of a blow on the head.

Barney—who usually stayed up late to hear his favorite radio thriller, and who always turned out the lights to get the best effect—was standing

(Continued on page 70)

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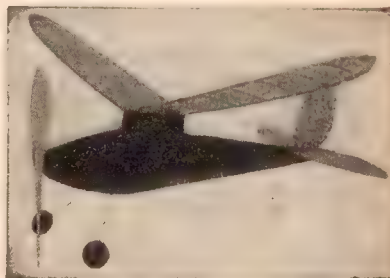


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behind the door, calmly socking every unfriendly head that came through the portal.

The talkative one received an especially effective blow that finished the thick bottle the Mick clenched in his paw, whereupon several hookers of O'Doul's very best went splashing all over the floor. The gun went off—but luckily it merely bored a hole through a particularly fine 19th Century Tekke-Turcoman carpet that graced the hall.

"Nice pitching, keed!" Keen said, fingering for the light switch. "Go get yourself another bottle. But first, check over that gentleman over there that's been doing the driving. You'll find a very generous wad of local currency somewhere about his person. And remember, the safe where it belongs is over there."

THE next few minutes saw a combination of a fraternity rush and the emergency ward of a popular hospital. Barney, frisked the man named Leo and found a very encouraging packet containing crisp notes—a lot of them.

Miss Colony, playing the Florence Nightingale rôle, bound up the three throbbing heads and staunched the general flow of blood.

"What was that other blood from?" asked Keen as he watched the girl work on their captives. "We thought all sorts of things."

"Well, they didn't get me without a struggle," the girl answered without looking up from her current patient. "I'm afraid I was a little upset at being hindered. I took a swipe at the gun hand of one of the charming persons with your paper knife. I almost made him drop his automatic, too."

"Got to congratulate you," agreed Keen with admiration. "By the way, your British boy friend is still wandering about that country club decked out in an Alp climber's outfit. Can you imagine anything sillier in this neighborhood where the Empire State Building is the only mountain we've got?"

"I'll go over to the party when we get rid of these lads," said Pebbles. "But what do we do with them? Drop 'em in the Sound?"

"What, after you've wasted all that lovely white bandage on them? I should say not!"

Barney came into the scene again brandishing two new bottles and appearing very self-satisfied. He popped the cork of the champagne and poured for Keen and the girl. Then he plopped the cork of the O'Doul's Dew and began to gurgie.

"Lay off! We've got to get these birds out of here first," snapped Keen. "We'll bind them up and leave them somewhere along the road until a State Trooper finds them and pinches them for loitering with intent to mope."

They cleaned up what mess they could and made the grumbling gangsters walk out to the car again. They bound them securely in the back seat

of the sedan, then climbed into the front seat together. Keen took the wheel.

"This should teach you lads to lay off people who have a young lady in their party—especially a young lady who goes in for uniforms. Such girls are bad news," said Keen. "Anyhow, we're giving you a better break than you deserve, and we hope you can think up a good story to tell the cops when they find you trussed up out here. You'll have to find a better one than you told us, at any rate."

They raced back to the country club, where Pebbles went in, picked up the Englishman, and brought him back to where Keen had left her car. Then she and the Briton followed behind as Keen drove the sedan along the back roads and finally left the thug car and its trussed-up load parked under a large tree just off the highway. They left the parking lights on and waved a good-bye to the three men who could glare back in frustration. Keen and Barney were then picked up by Miss Colony and it was generally agreed that they should all return to Graylands where things could be straightened out.

"So they didn't get the blue print?" asked Matin when they were on their way and most of the events of the last half hour had been explained to him.

"No. All they got was three lovely socks on the noggin, deftly applied by one Barney O'Dare, one of the finest noggin massagers in the business," grinned Keen.

"But what I can't make out," the Englishman went on to Pebbles, "is why you were running all over the country with those fellows, turning up at the various air fields."

"Don't worry your head about that," said Pebbles, realizing there were things this Englishman should not know. "That can be explained later."

She could not, of course, tell Squadron Leader Matin that she used that dodge to keep the thugs away from Graylands until the Black Bullet was safely in the hidden hangar again. Matin, naturally, knew nothing of the Griffon side of this mad game.

Keen had figured all this out as they rode back from the country club. He had to hand it to her. She certainly could think quickly.

THEY ARRIVED back under less harrowing circumstances this time, and then Barney played the butler to perfection, although he never missed an opportunity to slip in a word here and there and enjoy the conversation. Miss Colony finally slipped away for a few minutes and changed into her ordinary attire, and the Englishman also took the opportunity a little later to get out of his Alpine get-up and slip into his uniform.

While he was upstairs, Keen and Miss Colony had a few minutes to talk confidentially. The young ballistics expert spoke first: "Your British friend thinks those planes are being

sent off from—"and he whispered the rest of the startling theory.

The girl thought a minute or two before answering: "There might be something to that! The regular crew of that boat has presumably been accounted for. But those seamen could have been replaced by a special crew—say one from one of those mother ships from which they used to catapult the big seaplanes."

"I heard years ago," said Keen, "that that ship's funnels were so built that they could be trunked toward one side and joined to a series of ports, in such a way as to give the vessel a free deck, once the superstructure was removed. I think there is something to it!"

"But what can you do about it?" asked the girl.

"If I could find her, I'd do something about it. The next one may not be a dud, you know. I mean, the bomb business. If the reaction is not sufficient on the strength of this, they may go the limit and drop a bomb smack in the middle of New York City."

"I'd hate to go to war with Squadron Leader Matin," said the girl with a smile.

"Is it like that?" asked Keen, frowning a trifle.

"Don't be silly. You know me, Kerry," the girl said frankly.

"Well, what's the game? What's the tie-up with this fellow?"

"Don't you see? I might want to go over there—to England, you know—and get a swell job driving some General's car. I'd love that. Have you seen their uniforms?"

"Here we go again," grinned Keen. "The British do it again with uniforms. But—well we'd miss you, Pebbles."

"Forget it. It was only just an idea—just in case things got slow around here."

"Of course," said Keen. "I'll admit tonight was a bit dull. All you did," he said blandly, "was nearly get yourself killed. 'But maybe we can make things a little more lively in the future if you'll stick around. In the meantime, however, we have a few things to consider. For instance, what are you going to do now?'"

"I'll run Squadron Leader Matin back to New York, I think, then I'll go home and try to get some beauty sleep. I'll call you in the morning—unless we're bombed out."

"Don't worry. They won't try anything now until tomorrow night. I'll expect to hear from you, though, and we'll see what we can cook up to enliven your cloistered existence, eh, Pebbles?"

THE TELEPHONE bell abruptly jangled. Both of them stared at the instrument, then breathed a name in chorus: "Drury Lang!"

Keen took the phone. "Hello? . . . Yes, Keen speaking . . . That you, Lang? . . . Yes, I've heard about it on the radio . . . No, I haven't a single idea what it's all about. Have you?"

The Secret Service man was evidently very tired and very anxious. He knew he was in a tough spot, and it looked like he was licked.

"But I don't make any sense, Keen," came Lang's voice over the wire. "We know darned well this is another spy trick. But how can we prove it? Haven't you any ideas? Don't you even think about a thing like this, out there on Long Island?"

"Of course I do, Lang. But what can I do about it?"

"I don't know. I'm just sitting here calling people like you, and they all act just as dumb. Don't you realize what this means?"

"Sure I do," Keen winked at Matin, who now entered the room fully dressed. "It means you think I'm in the know. Well, this time you'll have to think up a new one. And don't go threatening me about the missing Doyal Destroyer plane, either," Keen snapped back.

"That's what I thought you would say, Keen. You didn't know anything about my twin brother, either, did you? But an awful lot of things happened that seem to fit too close in that affair."

"Are you going to start all that again?"

"I might. It all depends on whether you show any interest in this torpedo affair."

"Good night, Mr. Lang," said Keen with artificial air in his voice. "I have an idea, suddenly. But hanged if you'll get one ounce of credit this time."

"That's all I want to know," said Lang, hanging up. He was rather pleased with himself, for he knew Keen would do something. And somehow it would be the right thing, even though he himself would get no credit. This was no time for credit. This was a case of preventing our entry into the war!

NEXT MORNING, Barney was on deck reasonably early, with a steaming hot breakfast and all the morning papers. Keen sat up, in a suit of pajamas that would have made a mule bolt, and read the detailed stories of the torpedo outrage. He ate his breakfast without knowing what made up the menu. He figured and plotted. He drew lines across the newspaper maps and jotted down figures in the white spaces of the advertisements.

Barney potted about the room, watching the expression of his boss change with every answer to every problem he figured. Finally, the Mick saw a warm glow lighting Keen's face.

"How is she, Barney?" Keen suddenly asked.

"Miss Pebbles or the Bullet?" the Mick replied with a grin.

"The Bullet, you poor sap."

"All set!"

"Swell! And we can fly her again tonight Okay?"

"Sure! But where we going, Boss?"

"We're going to stop all this torpedo business—before it gets too

serious. I have it all figured out now, Barney. The ships are British, all right. And that bird Matin hinted where they might have come from—a carrier of some kind, directly east of New York City. I say that because in the past few days they've spotted German submarines off the New England coast and also around the West Indies—a gag to pull Coast Guard activity north and south, thus leaving this vicinity uncovered. Trans-Atlantic ships come in from the north-east, so it is obvious that if there is a carrier out there it must be due east, or perhaps just slightly south of due east. Say, at a point directly east of Cape May."

"You think of everything, don't you, Boss?" the Mick said, standing there scratching his thatch.

"If anything happens in the Senate today that appears to be in anyway favorable to the Allies, you can bet your last buck—if you have one—that they'll pull a beaut tonight. And they'll have live explosives this time—I mean in the torpedoes and bombs."

"So we gotta do something, huh, Boss?"

"Right!"

BARNEY cleaned up, returned to the hangar, and went to work on the new Black Bullet. At 3:20 that afternoon, Miss Colony called up and gave Keen some interesting news. He listened attentively for some time, then said: "All right. But you'd better make sure it is British. You sure you can trust that Matin fellow?"

"Of course!" Pebbles answered over the phone. "He said it was brought over here in co-operation with the U. S. Air Service. Our experts looked it over but decided not to test it out on any American plane, so Matin's stuck with the thing. He said he will see that it is placed in my car, and he thinks I'm taking it down to Cape May to turn over to my brother who's in the service. Figures my brother may test it some way."

"You must have been thinking hard to work all that out. Doesn't your head ache?" laughed Keen. "Well, bring it along, but for heaven's sake don't get into an accident with that aboard, will you?"

"I'll try not to," the girl replied with sugar in her voice. "It is supposed to carry a wicked explosive—so in case I do make a mistake, always think of me with sun on my hair, a fluffy afternoon dress, and—"

"Stop it! Stop it, Pebbles!"

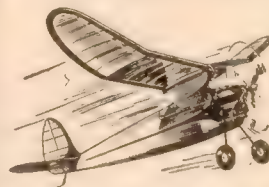
"Good! That's fine! Now you get some idea of how I feel when you go buzzing out to sea almost every night with that crazy Irishman. So long, Kerry. I'll be seeing you."

"I hope!" added Keen, hanging up the instrument and wiping the perspiration from his brow. "Whew!"

But Miss Colony, beautiful and beaming, arrived safely just before dark. Keen was standing on the steps, after pacing the den for what seemed hours. He and Barney then unloaded the strange, official British marked

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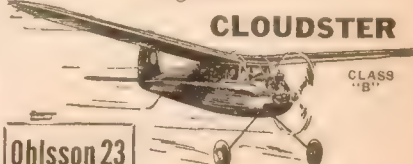
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crate she brought and carried it downstairs into the hangar, where they unwired the lid and struggled to get it out.

"It" was a deadly 250-lb. armor-piercing bomb, slim and bullet-like. Keen studied the projectile and decided that it was loaded with just the stuff the doctor ordered. Then he fingered the rings of the fuse and made a mental calculation.

"That's good," he smiled. "They thread their fuses the same as ours. That may help, if we ever have to chip in and give them a hand. 'We'll give it an active service trial, eh? Anyway, this is what your gangster friends were after last night, Pebbles. A new type fuse that really works on delayed action. If we miss the target and hit the water, it somehow goes off at the right time anyhow. But we mustn't miss! And you'd better get away for a moment now," he advised Pebbles. "I'm going to change the detonators. Tricky business, this."

"If you can stand it, I can," the girl replied, showing her confidence in the

man she so admired.

"Okay, if you say so," he said, unscrewing the tiny tube of fulminate of mercury and placing it in the tube of the new fuse. "This tiny tube, Pebbles, is powerful enough to blow off all our respective arms, legs, and heads. Nice thought, eh?"

"Lovely," agreed the girl. "Wonder how it would work on warts?"

Keen gave up at that and helped Barney fix the bomb into the internal rack under the nacelle floor-boards of the Black Bullet. They checked the release gear, then brushed their hands together in quiet satisfaction.

An hour later, the new Bullet plane, formerly the Doyal Destroyer, rumbled out of the hidden hangar, opened her folding wings, and slipped away into the darkness.

"I'll be waiting for you when you get back," the girl promised, "with a warm fire and sandwiches. What more can you ask?"

"All I ask," said Keen, "is that you don't give us another scare by walking out with another set of ungram-

matical thugs. There's a limit to everything."

The girl's laugh rippled in his ears all the way up to 4,000 feet.

BUT ten miles out, that strange physical and mental change came over Kerry Keen that transformed him into the Griffon. With the girl erased from his mind, he now thought in terms of speed, altitude, gunnery, and enemy planes. With Barney huddled under the shelter between the two cockpits, he became part of a team that scoured the skies for enemy raiders.

Together they searched high and low. From the north came two trans-Atlantic liners, their lights doused, but betrayed by their trailing plumes of propeller wake. They ignored them after a quick glance.

They zig-zagged back and forth for nearly an hour. Then they set their course for the position where they had last seen Jan Boompjees and his old tramp steamer.

Keen was studying a chart when the first flash came. It spat from the .50 caliber gun somewhere behind, and he twisted and saw that Barney was pointing the gun directly aft and upward.

Immediately, Keen made a quick adjustment on the trimming tabs and prop blades. He rocketed the Black Bullet like a projectile—and came up behind four British Blackburn Sharks!

The four Sharks turned on them fast. They spread fanwise at first, then came down at high speed. All had grim-looking torpedoes between their wheels. Keen hissed at the sight of those torpedoes, and he ripped the Bullet around and thumped a heavy burst at the leader, who seemed uncertain as to just what to do.

Keen made up his mind for him. The crashing 25-mm. stuff pounded full into the fuselage and the Shark staggered away, mortally wounded. Barney was staging a wicked duel with the second Shark, which was now coming back at them. This Shark's front guns belched withering fire and the Bullet rang with the thudding of the slugs. The Mick blasted back at her, made her turn.

For ten minutes they fought it out—until the plane broke up in mid-air. Their fire nabbed it just after it nosed toward the east.

That gave Keen an idea. "Keep your eye on them when they try to get away," he yelled.

"They ain't gonna get away," the Mick bellowed back, still engaging the nerviest of the four. "You watch me!"

They criss-crossed their tracer fire, and the sky echoed with the roar of engines and the rattle of gunnery. The Mick got in a terrible burst full at the third Shark, which was trying to work over near the fourth attacker. There was a dull booming roar and she went up in flames. Sheets of burning gasoline fluttered across the black sky to light up the mad scene. Chunks of Shark parts whizzed by, screaming



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and wailing. A man, all arms and legs, went head over heels past their wing tip and his parachute opened with a clap of outraged silk.

Barney huddled in his cockpit, watched the man swinging beneath his shrouds.

"Come out of that stupor!" yelled Keen. "There goes the last Shark! They're checking out!"

Barney raged at his guns, resumed his fire.

"Hold it! Hold it! Let him get away and we'll follow."

They hugged the tail of the lone Shark, fingering guns and their bomb toggle with anticipation. The lone torpedo bomber tried its best to get away, but against the speed of the Black Bullet, it was hopeless. Keen played with it as a cat plays with a mouse, then plugged in his radio phone-jack, listened over various bands for several minutes, then caught the wailing appeals of some flyer talking to a surface ship.

"He's trying to contact someone down here. He's getting more orders to go on and drop his stuff first," he explained over his shoulder to Barney. "We'll stick around. Maybe he'll lead us to the carrier—or whatever it is."

THIS AMAZING GAME had gone on for nearly twenty minutes. Then the Shark turned and tried to put up another fight. They drove him off, satisfying the Shark pilot that he had no business trying to fight the Black Bullet. He now suddenly turned and went down in a stiff glide.

The Black Bullet followed—and ran smack into a heavy barrage of smashing fire. It came from somewhere below, but in turning to get clear, Keen could not see what was firing at them.

The heavy shelling crashed all about them. By now the Shark was missing, too, and Keen raged because he sensed that they had missed both the Shark and the carrier—if that was what it was.

He circled tight, then caught tiny pin-flashes of light coming up from the scene of blackness below. He yanked a short lever fitted to the side of his seat, then swung the Bullet over in a bank.

From somewhere behind glared out a long licking flame that streamed back under the tail assembly. Keen had pulled a special flare to create a fake effect. It made the Bullet appear to be in flames!

The ruse worked. As the Black Bullet spun down slowly, the guns below halted in their mad crashing. Then gradually there appeared a long series of lights that outlined a long vessel, and before they had spun down a thousand feet, the full details of a carrier were brought out in garish splendor. The Shark was curling around the prow and cutting along the line of the hull to make a landing.

Keen could not bother at that moment to obtain details or identification of the carrier. All he saw was a long flat deck strangely marked with sections that appeared to have been

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painted different colors. There were long straight lines of brown, squares and oblongs of light yellow, more shapes of green and gray. And somehow he sensed that these *might* once have formerly been the floors of salons, ballrooms, libraries, and dining rooms. They *might* have been. There was no knowing, and there was no time to figure it all out now.

Keen suddenly straightened out and nosed down in a dive. Barney was leaning over the side and pelting long screaming bursts at the wabbling Shark which was now heading for the deck.

The Black Bullet hovered over the carrier momentarily, then took up the same line of descent. The two planes seemed to be going in together, one about twenty feet above the other. Keen held to this approach while the Mick poured a long burst straight down between the two outriggers and full into the cockpit of the Shark below. The burst finished one poor devil who never knew what hit him.

Keen now saw that the ship had funnels trunked on one side—and, yes! The vessel gave every indication of having been quickly reconditioned from a liner to an aircraft carrier!

The old masts had been removed, only a smaller stub mast remaining on a weird, makeshift flying bridge fashioned out of the original superstructure of the liner.

All this he took in in two seconds. But the Shark had now landed on the deck—and with that Keen swung the Bullet over and pulled his bomb toggle.

At that, a long, slim projectile slid out from the Bullet's under-compartment with a hissing retch. Down it plummeted, and Keen just had time to twist the plane around and watch. The bomb hit with a dull crash full on the deck.

Where it hit there appeared a hole such as a giant might have battered with Thor's hammer. Then there was an awful stillness when everything seemed to stand still. The Shark seemed to hover in its uncertainty. The man stood paralyzed with intense fright and fascination.

Then it happened!

A roar—like that of a granite peak of a giant mountain rolling down into a black cavern—boomed up from the vitals of the carrier. Splinters of jagged flame slashed out like cordons

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of daggers along the under side of the deck. Then there came a dull thunderous boom and the deck itself broke across the middle like a mammoth biscuit—and the Shark plane went skittering down a long incline of planking, dropped off the front lip, and disappeared in the cruel breakers being parted by the racing prow. Then came a final explosion in which the hull ripped itself open with a bel-low of horrible rage.

The unnamed carrier, blown completely apart, huddled to the water for a few seconds, then settled itself and sank amid a cauldron of boiling foam.

"Did you see anything that gave you any idea?" asked Keen as they curled away.

"The name on her began with a 'B,'" said Barney, who still quaked under the mad concussion.

"Right! And the next letter was 'R,' wasn't it?" asked Keen.

"Yeah. But I don't know what the following letter was. It might have been an 'E' or it might have been an 'I,'" the Mick added.

"Well," said Keen, "I'd say that third letter was an 'E'—and the fourth an 'M.' From there you can just figure it out for yourself. Any way, now you can understand what Matin hinted and what I was talking

to Pebbles about."

Astounded, Barney sat silent for a moment. Then he burst out: "B-but that liner! Didn't the papers say it was now in Mourmansk, or Minsky, or some such place?"

"Don't be silly, O'Dare," cracked back Keen. "Minsky's a burlesque show—surely you *must* know that! Anyhow, when it comes to the question of that fast, trans-Atlantic liner, there's still plenty of mystery as to

exactly what happened after she left New York. At any rate, what you just saw should prove to you that you can't believe everything you read in the papers."

The Mick couldn't say a word for a few minutes. Then he came through with the question: "Now what happens?"

"Nothing, though a couple of lifeboats with survivors may be picked up—if any got away."

Impropa Ganda

(Continued from page 14)

Phineas' optics were as good as if they had never been used, so he soon spotted the pair of goggles near a clump of bushes. He picked them up, however—and kept on looking.

After a half hour search, *Leutnant* Kohl threw up his hands and put on the grief. "Ach! One hun'ed marks dey cost me. Vell—you show me *der* way, *mein freund*. Glad I is I am through *mit* fighting *der* Junker's var. Und dat Goering—ugh—swelled in *der* head! Nobody, he tinks, but him is in *der* air—Himmel! Vait—just vait!"

Phineas conducted *Leutnant* Bernhardt Kohl to the nearest infantry outfit and handed him over. "Goo-bye, Fritzzy," he said.

"Hoch Lenin! Down mit—!" came the Kraut's farewell.

HOWELL still waited for Phineas on the drome of the Ninth, though he'd got tired of sitting in the shadow of his Spad. The flight leader greeted the late arrival with a wide grin on his pan. "How did you like it this A.M., huh? Who is a sissy now? I'll show you—!"

"I wish somebody had a sense of humor around here," Phineas growled at Howell. "We might have been all killed. You should be busted y-you—Well, I got a lot to do and cannot dilly dally. Adoo!"

Bump Gillis threatened Phineas. "You git the skipper mad ag'in so's he'll do what he—well, I'll knife you! Look, I am still shakin'! Four Spads, one with a sore throat—against fifteen—oh-h-h-h-h it was a dream, I bet. I remember—"

Phineas ignored Bump. He delved into his trunk and lifted certain things therefrom. He collected various articles from other parts of the hut and stuffed them in the pockets of his flying coat. "Travel sure broadens one, doesn't it, Bump?" he flung at the Scot. "Now, when I was in Russia—"

"Huh? When you were—where?"

Phineas walked out of his hut without answering. He had a very important chore to do, and his plan moved swiftly inside his noggin. The seeds of the idea spawned out there near Souilly had sprouted roots and they were spreading all through his gray matter. They could be labeled "Intrigue, Skulduggery, Diplomacy, Dirty Work, and almost Lunacy."

Lieutenant Pinkham — without

bothering to ask if he could—confiscated a mechanical bug and put-putted out of the airdrome.

Garrity roared, "Who—the devil does—he think he is?"

"I—er—guess he thinks he is the guy you think you are, Sir," the Adjutant offered—and nearly got slugged for his pains.

The Old Man went back into the Operations Office and jotted down a memo. "Bust Pinkham," it said.

Phineas, meanwhile, rode to the hamlet known as Vitry and looked up a Frog by the name of *Monsieur* Francois DeBris. DeBris enjoyed the distinction of being the breeder of the best carrier pigeons in the land of the Franks.

The Boonetown jokesmith got right down to business when he met the fancier of feathered friends. "I would like to rent eet out ze pidgy-on, mawn sewer. You have eet ze good birds, nest paw?"

"Have I ze pidgy-ons? *Voila!* My Clementina—it was she who tak' ze message to Marshal Foch at ze Marne, *mon ami*. And Edouard eet was who fly weeth ze message to—"

"I know," Phineas said. "But let's have a gander at ze pidgy-ons, wee? Time flies, *non?*"

"*Oui!* But I time one pidgy-on yesterday, *m'sieur*, an' eet *arrivez* back from Paree in jus' *quatre heurs*—seexteen min—"

"Very good," broke in Phineas. Then he chose the bird he wanted and took a supply of corn with it to last the traveling fowl at least three days. To Francois DeBris he then gave orders that knocked the Frog back on his heels, to wit: When the pigeon returned to the home fires, Francois was to hot foot it toot sweet to the Ninth Pursuit Squadron and hand it over. Phineas sealed this bargain with an extra ten francs. "Aduo for now," Phineas cracked. "We make history, *vous* and me."

Major Garrity had Phineas dragged into his presence when the incorrigible skyster returned to the drome. He wanted to know if Phineas knew what "A.W.O.L." meant.

"Uh—er—All Wet Over London, haw-w-w-w-w!"

"That is enough. You will get court-martialed. I've stood all a normal man can stand," Garrity trumpeted. "You are under arrest, an'—"

"Now look, Sir," Phineas said. "I—er—this squadron has got a shiner,

"But what about old Lang?"

"That's easy. We'll tip him off about those three thugs tied up in that black sedan, and he can enjoy himself giving them the third degree. That's all he gets out of this party."

"And now we go back home?"

"Yes. Back home to Pebbles, a toasting fire, sandwiches, and—"

"—and another bottle of O'Doul's, eh, Boss?"

"Right, Barney!"

an' you know it. We are in the pooch's bungalow an' the Frog outfit over by Dommartin is goin' to try an' wash up the Kraut gas supply, get it?"

"I will not take any more from you—you—!"

"Uh—listen, Sir—Major. Here is an idea I have got, and I will tell you why. What can you lose? What can I lose. Haw-w-w! If you would listen a second an' let me talk—"

Garrity listened for fully twenty minutes. When he finally came out of the Operations Office he looked as if he was under the spell of a shot of hasheesh. "Comes the revolution—" he muttered, "Blood—running like bortsch—down with cap—"

Bump Gillis gave the C.O. a wide berth. The look in Garrity's eyes scared him. Phineas went over to the hangar and collared Casey.

"We have work to do, Sarge," the Boonetown pilot said. "We have got to put this little cage in the fuselage of my crate where it will be hid from sight. Right back of the seat, huh? Git busy an' chop a hole—"

"Where you takin' a pigeon, Loo-tenant, huh?"

"There is a fair over near Paree. I think it will git a blue ribbon—oh, shut up and do like I say, as where is the discipline you have been taught?" Phineas bridled. "I must be ready to go over at sundown. I have got enough corn in the cage to last the bird three days. And what do you think of Heloise, huh? Look at her wing span, Casey!"

Casey said: "Let's get started, Loo-tenant, before I lose my sanity. I guess the brass hats know what they are doin' gettin' ready to bust this outfit."

WE NOW take you to the cellar of a small house on the outskirts of the Alsatian village of Busendorf. Two Heinies of not too much stature were holding a pow-wow. One was clad in the gray-green burlap of the Kraut army. The other wore Munich mufti. The uniformed guy had a face that reminded one of a vaudeville stooge, and over his upper lip was a black mustache that resembled a pair of inverted steer horns. On his sleeve was a corporal's stripe.

The squarehead in civvies had an angular face and a pair of zombie eyes. He said: "Adolph, *mein freund*—we must have der third man, ja. Der Bullsheviki must not take der

Faderland. Ve must not be democrats und not socialist, *nein*. A new party—"

"I know who *ist der third man*, Herr Goebbels—if I can gedt him. Budt he *ist* a proud Junker! So I fear when he finds out I hang paper vunce. Anyhow, look! Here *ist* what I haff been writing, *mein freund*. Some day it will be ge-finished. Even now it vill tell you of my plan. You give it back when I see you in t'ree days, *ja?* Now I must go. Still I am der unfortunate slave of der Hohenzollerns, *ja! Himmel! Comes der tag!*"

"Ja, Adolph. I vill read idt what you are writing. H-m-m—*Mein Kampf* you call idt! Vell, *guten nacht*," said Herr Goebbels.

The propaganda wizard of the Rhine then chuckled to himself. "Ja! I make photostatic copies of what he has written already yedt. If Germany vins der var, I will have him where I want him—and if dey don't, I stick mit him. *Ja!*"

The sun was ducking low in the west and reaching for the horizon when Phineas Pinkham's Spad was trundled out of the hangar. Pilots wondered about the crackpot's mission. Howell strode across Phineas' line of flight when the Boonetown miracle man came out of his Nissan. "What's up, Phineas? What's the big secret?"

"All I can tell you is that it is fowl play, haw-w-w-w-w! Adoo now—maybe for the last time!"

The Old Man stood in the doorway of the farmhouse and wondered if he should not call Phineas back. Then Garrity remembered what they had once written about him in the home town papers when he had been chief umpire of the Houstic Valley League: "Garrity never reverses a decision!"

The Old Man simply said: "The devil with him!" and walked back into the Operations Office. He sat there holding his hands over his ears when the Pinkham Spad roared across the field. "Good huntin", Phineas," he finally muttered. "You are carryin' the wrong bird. It ought to be a cuckoo! Oh, what have I gone and done? That fathead must hypnotize me an' I don't know it. Let 'em bust me—I'm—"

Phineas flew over the lines. He had to if he wanted to get to Germany. He had a map pinned to his leg and he kept giving it a gander for a spot marked "X." The sky was as quiet as a Scotch tag day when the Spad droned high over Forbach. In fact, it was too quiet and Phineas felt his epidermis begin shifting on various parts of his fuselage.

He kept trying to line up Goering's Fokker nest with von Bock's. While he circled, three Boche crates came up from the real estate as if they had been released by a sling shot. Phineas knew he had to land the Spad in one piece to preserve the health of Heloise. He started signalling for a fair catch, but the Boche would have none of it.

Phineas started climbing. A Fokker burned his tail fins with some

quick jabs and it kept narrowing the gap. "Them—bums," Phineas choked out, "must have somethin' special in their gas. Antelope gland syrup, or somethin'."

Up ahead there was another Boche sky buggy and it was of a different color. Spandaus stuck out their orange tongues at Phineas and he winged over. Another D-7 let him have it in the Spad's floating ribs. Phineas kept on signalling for a chance to land but they would not give it to him.

However, he kept sliding closer to terra firma and faked a mortal wound to cover his maneuver. Spandaus eased up a little and Phineas then made a desperate try at the lineoleum—and got away with it.

The Spad did some funny things before it came to a stop. It leaned very much on the bias when Phineas got out of the office and examined himself for punctures. Finding none, he whispered against the side of the crate, "How are you Heloise, old pal, huh?" He heard the pigeon moving around and heaved a deep sigh. He looked around, saw some Heinies coming toward him. A Fokker D-7 was making a landing in the pasture not far away. Another was above it planning to follow suit. They bore different markings. A Herr Oberst nodded to Phineas and grinned nastily. "Ah, *der Amerikaner*, *ja?* Ach—what do I see on der Spad? *Leutnant P. Pingham—Himmel!* It is Pingham! *Gott sie dank!*"

A Heinie pilot joined the party. Told that he had downed Phineas, he thrust out his chest and grinned all over his pan. "So! It is I, *Hauptmann von Bock*, who shoodts down der great Yangkee Ace, *ja?* Und all der Junkers have tried—"

"Liar, you *ist*, Bock!"

Phineas swiveled his head and looked at still another Jerry buzzard. This one had a broad physiognomy and his head was shaped like a building block. He was chunky and arrogant "It was I, Hermann Goering, as shoodts down der Spad, *mein freund*. A little mistake is bound to happen, Bock!"

"Bummer! Again you try und steal der victory from me. I have had enough, Goering. Enough *ist* too much yedt. I say it was I!" And Bock gnashed his teeth and banged his fists against his chest.

Phineas grinned. "I will be sittin' over here if you want me. Go ahead an' fight over me. Haw-w-w-w!"

Von Bock turned to the Jerry infantry officer. "I will leave it up to der Herr Oberst. He was watching, und—"

The Kraut brass hat said, "Ja, I think it was *Hauptmann von Bock*. I was right underneath, Herr Goering—"

"So?" Goering roared. "Bah! Some day Roehm, I giff you vhat *ist* vhat! I claim der Yankee und you try und take him away. I—Goering—shodt down *Leutnant Pingham!*"

"It was von Bock!" came back Roehm.

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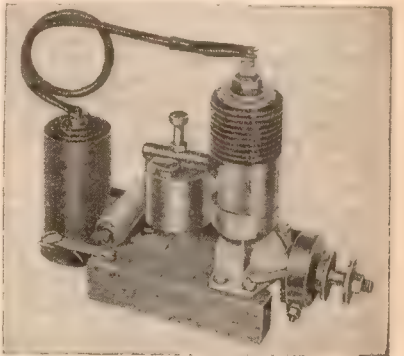
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"Say, I'm the victim," Phineas cut in. "Why don't ya ask me? Awright—it was von Bock!"

"Bah-h-h-h-h! von Bock *hein*? He calls himself a 'von' budt he *ist* no Junker. He *ist* only der sausage stuffer from Aachen. Ho! Ho! You wait *und* see who officially gedts der victory—it will be I—Hermann Goering!"

"So!" Bock bellowed, jumping up and down. "So *idt ist* der last straw by me! Insults I have taken vunce too many, Goering. I show you, *mein herr*! Comes der tag! I go. You keep der *Leutnant* Pinkham!"

"Ja!" Goering mocked. "Back to der sausage meat grinder, bummer!"

"No wonder you have shot down a lot of planes," Phineas said to the Junker pilot. "I wish I had some ghost fighters, haw-w-w-w-w!"

Hermann Goering frowned, ordered the infantrymen to transport his prisoner to his squadron. "Pinkham—der funny man, *ja*? Always *idt ist* said I have a sense of humor *und* you will be *mein* guest for two, t'ree days—maybe more before you go to der prison camp. Ach! Bock *ist* der clumsiest *schwein*—in der air force. Such *ein* shame—"

PHINEAS was regaled by Goering and his brood in a small chateau near the Saar. The Boonetown pilot was a howl at mess. Junkers picked bugs out of their victuals. Two of them got ants in their pants. They tried American chewing gum and did not like it. They said it tasted like rubber—which was just what it was. They smoked Phineas' cigars and nearly set the chateau on fire. They watched Phineas swallow a box of tacks with their eyes bugging out. They did not know they were made of licorice.

In brief, Phineas was a card. Hermann Goering sat at the head of the festive board and roared with glee—until he found the apparently defunct mouse in his alleged beef stew.

Goering showed Phineas the Boche layout. The pilots occupied three adjoining rooms on the second floor. While Phineas examined these boudoirs, his hands moved restlessly. They moved quicker than the naked eye could see. Goering heard planes overhead and went to the window and looked out. "*Idt ist* funny yedt. Two more! Some vent over a little while ago—looks like der Fokkers from Bock's *Staffel*. Ach—*was ist*?"

Phineas looked out the window, too. He saw an extensive low frame building at the foot of a long slope—and there was a lot of activity in and around it. There was a big truck with a searchlight mounted on it. Dozens of other trucks were arriving and leaving. There was the smell of petrol in the ozone. Phineas, his ticker pounding, swung away from the window. Goering said: "Now I show you my quarters, *Leutnant*—we play some pinochle, *nein*?"

"Oil right," Phineas said. "A fuel there was—haw-w-w-w-w!"

Goering's rooms were something to

look at. The Heinie Fokker foreman had a closet full of uniforms that made Phineas blink. "You must be the best dressed man in the gare, hine?" he said to Goering.

"Ja! Some of der uniforms are not for dis var, *mein freund*. If Germany is defeated, we gedt ready vunce more—"

"Huh? But you might git as fat as a hippo by then, Hopman," Phineas mumbled. "That white outfit there is the berries, ain't it? By the way, I hear there is Russians around. They are handing out books by a bum named Marx—huh?"

Goering sputtered. "Ja! Der Reds! Dey are *schwein*. But dey are wasting der time, *Leutnant*! Already ve make ready for dem. I have a *freund*—er—but let's change der sub—"

Planes roared over the chateau again. Goering looked up and scratched his head. Phineas grinned—and smelled a rodent. "The—Reds—huh? I guess the White Russians would have no chance in Germany, as they are the ones that wash, huh? Haw-w-w-w-w-w-w!"

"Hein?"

"Skip it," Phineas chuckled. His brain was hitting up the revs. So far, so good! Already he had snapped the strained relations between von Bock and Goering. He remembered Bernhardt Kohl and knew, even as the two rival Jerry circus ringmasters had clashed, that his skullduggery had drawn first gore. He wondered how Heloise was getting along.

Phineas heard a Mercedes singing high over the chateau. He wondered if his hunch was right. Yes, he was sure that it was. Once the defense around the fuel dump was busted wide open, Heloise would wing back to Francois DeBris with a message.

Goering's cherubic face was troubled and he went to the window and looked out again. Phineas sat close to an old horse-hair sofa on which had been thrown Hermann Goering's flying gear. The Boonetown exponent of legerdemain continued to practice his art with amazing skill. He kept up a running line of talk as he worked. "Von Bock'll keep tellin' everybody you cheated him. *Herr Oberst* Roehm will stick to his story, too. You will have a tough time talkin' the High Command into givin' you credit for knockin' me off, *Hauptmann*. The Junkers are outnumbered, an'—"

"Bah! You know I, Hermann Goering, beat you in combat, *Herr Leutnant*!"

"If you did, then Lenin is a silent partner with Rockerbilt, haw-w-w-w! You will toss me into a Heinie klink when you have had laffs enough, huh? I won't git out alive, I bet, as you know how the Kaiser's boys like me."

"Ho! Ho! Look—I am cryin' yedt."

"You couldn't beat me, Goering. You don't dare fight me in an air duel. Haw-w-w-w-w-w-w!"

"He-e-ein? Gott in Himmel, *Leutnant*—do not try my patience, or I—"

"There is just one way to put it over Bock—an' that is to let me get upstairs an' knock me off in front of witnesses," Phineas drawled a little cursorily. "What a laugh you would have on that weenie taxi-dermist, huh? But you wouldn't dare. Nobody ever knocked Phineas Pinkham down an' kept him there. Le's forget it!"

The needling was getting results. Hermann Goering paced the floor and muttered under his breath. He kept looking at Phineas and cussing.

"What could you lose?" Pinkham continued. "I couldn't never get away. You know them Fokkers better than I do. I am used to Spads. I wouldn't have one chance in ten thousand. But I might lick you an' then what—haw-w-w-w-w!"

"Bummer! You tink you *ist besser* den Goering? Ha-a-a-ah! Budt maybe I do like *idt der* idea. I would make Bock der laughing stock. How could I lose? Ho! Ho! Yes, I fix *idt*, *Leutnant*. You vill get to der Fokker an' go upstairs *und* I vill chase you. It is der bargain!"

"Look at me now," Phineas gulped. "St. Vitus is a wooden cigar store Indian compared to me. Why can't I shut 'up! I was only kiddin'." Haw-w-w-w-w!"

"Ja?" Budt Goering *ist* notd fooling. Early in der morgen, *Leutnant*. Ve vill fight to der death!"

"Oh, awright. I asked for it. I—"
Planes overhead again. Goering went to the window and looked out. "Flying over yedt. Going toward Austria—*ach was ist*?"

"I would like to take a stroll before I retire an' see the great outdoors, *Herr Goering*," Phineas said sheepishly. "I have not long for this world. I would like to write a billy doo to my pals so that you can drop it down after you knock me off. I couldn't escape. You know that. You have got more doughs around this dump than there are flies around a honey wagon, an'—"

"Ja. Anything to entertain my—er—guest," Goering said, and he went to the closet and took a white tunic off a hook. He donned the ornate piece of military haberdashery and admired himself in the mirror. "Gut!" he said. "In der next war, Hermann Goering vill—"

THE BOONETOWN BAM was given a sort of freedom of the German drome. Boche eyed him from a distance as he ambled across the field. He came to the Spad that had been towed in from where it had smacked the carpet. He took a little wad of paper from his pocket with one hand and opened up the flap in the side of the fuselage with the other. He took Heloise out and then fought off a stroke. The pigeon had eaten the three days' supply of corn in less than two hours! Eyes crossed, it vented something that resembled a burp and keeled over.

"W-Why y-you double crossin'—Oh-h-h-h! All is lost! I—"
Krauts grabbed Phineas. One picked up the

bird and howled. "Ach—der taube. Raus mit!"

Phineas was hustled back to Kraut headquarters and shoved toward Hermann Goering. The pigeon, as fat as a pound of lard, was deposited in front of the *Staffel* leader. Goering's cherubic face became dark. "So! Pigeon-man, *hein*? Now it gifts *der* firing squad anyway. Tricks again, *hein*? Ho! Ho! Budt Goering will save you from *der* firing wall in *der* morgen. Lock him up, *der* schwein!"

There was a commotion outside. Into the Boche Operations Office staggered a little Kraut pilot. There was a bump on his coco as big as Goering's ego. "Ach Gott—Hauptmann! It ist bad! Von Bock und his flyers go—and don't come back. Eighteen of *der* schwein! When I wake up, *der* ist a flag flying—here ist idt!"

Phineas stared at the crudely made banner. It had been fashioned out of a bedsheet. On one side had been painted a crude likeness of a citizen of Russia—Nikolai Lenin. Under the attempt at art were big black letters: HOCH LENIN! DOWN MIT JUNKERS! The other side of the flag blasted forthwith: DER KAISER—BAH-H-H!

"Gott!" Goering staggered backward and a little Fokker pilot held him up. "So—der Bullsheviki. Von Bock—Himmel—!"

"Yeah," Phineas gulped. "An' I bet half your outfit is a bunch of Reds, too! Search their quarters, *Herr* Goering, before it is too late. Haw-w-w-w-w-w!"

"*Hein*? I bedt you—*ja*, I will, *Leutnant*!"

"A bulls-eye," Phineas told himself. "Maybe there is a chance yet."

Goering and two of his flunkys ransacked the pilots' quarters. They uncovered a dozen pamphlets that had been printed in Russian cellars. Pamphlets bearing pictures of Lenin and which preached the doctrine that what's yours is mine and what's mine is yours.

Phineas was afraid for a moment that apoplexy would cheat him out of the tiff with Goering at dawn. Then Hermann the Great started a *putsch* that was to be the forerunner of later *putsches* in Kraut history. Protesting Junkers were slugged and tied up. Half the personnel of the field was *hors de combat* and waiting for the courts of justice. Von Bock's outfit had pulled out. Phineas had delivered a master stroke.

CAME THE DAWN. Hermann Goering was dressed for the air and sent word to the condemned man that his last hour had arrived. Goering had taken no chances. He had instructed his mech to see that a certain D-7 had but one or two bursts in its Spandau belts. All of them were tracers.

Phineas was given a hearty meal before he pulled on his leather shroud. On the Heinie drome, the faithful lined up and saluted Goering as he strode toward his battle wagon. They cheered him and hissed the Yankee

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upstart. Phineas knew what he knew and so only grinned at the Jerries. "Adoo! Don't make the omelet before you git the cackberries, haw-w-w-w! I'll put up a good fight—I'll see that there's no fuelin'!"

"Whistling walking by *der* graveyard yedt, *hein*?" Goering mocked. "I flew with Richtshofen! He ist dead—but Goering lives, *ja-a-a-a*!"

"May the best man win, *mein Herr*," Phineas countered. He was sure that Hermann was taking no chances. There was too much at stake. But if the bum had left at least six pellets in the Spandaus, well—

Two miles from the Heinie drome, two Krauts waited near a motorcycle. One said, "He will be our third man—if he lives. I know he fixed *der* Yankee's guns, *ja*! A man he tells me an hour ago. Ve have him where ve want him—*das* Goering, win or lose, Adolph!"

Goering swung into his office and got set. He pulled his goggles down over his glimmers. "Ach, everything looks so clear! Kontakt!" He waved to Phineas.

The Yank started running for the other Fokker and the farce was on. Boche fired wide and made the bolt for freedom look good. Phineas got into the Fokker, let it have its noggin. Soon he was off, and when it reached four thousand, Hermann Goering was five hundred feet above it.

"Numbed the Mercedes a little, too, the dirty bums," Phineas yelled. Then he got set to fence with the Boche. Goering poured bursts from his Spandaus and wondered why Phineas did not go down. Didn't he have him dead to rights twice? Hermann Goering did not tumble until it was too late. That other Fokker, when it seemed not more than fifty yards in front of Goering's crate, was in reality three times that distance away! *Leutnant* Bernhardt Kohl's special lenses were doing the busi-

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Phineas kept looking for an opening—and soon got it. Tracers knifed through Goering's office and chipped his empennage. The phosphorous lead pierced the *Hauptmann's* office, too, lifting Goering right out of his seat. The Fokker under him started to beat for a little cooperation from the main office. Goering frantically straightened it out, then began squirming again. He turned his attention to the D-7 only when it was but three hundred feet up.

"*Donnervetter! Gott in—!*" A wing tip kissed a rooftop and the osculation must have wowed the Fokker. It spun end over end and hit the linoleum with a WHAM! Hermann Goering described an arc through the early morning mist and got a good break by lighting on his head. He was shaken up from his arches to the roots of the hair on his noggin—and he stayed that way for fifteen minutes.

Meanwhile, Phineas was losing no time. He zoomed down over the fueling depot and gave it all that was left in the Spandaus. Three bursts only Goering had granted the Pinkham D-7. They were enough. Tracers ignited the Mercedes oomph elixir and

the heat from the fire charred the posts of the Heinie drome's barbed wire fence. A truck blew up, then another. Fire licked at dry brush and groped for the Heinie hangars.

Goering rubbed his eyes, then started yelling for somebody to do something. It was an awful mess all around. Goering looked up at the D-7 that zoomed overhead. "Pingham! Gott strafe—some day I bedt you—!"

Anti-aircraft batteries fired what seemed like old stoves and pieces of flat-irons at Phineas, but the Boone-town pilot was not going to let anything stop him from getting back to home and Garrity. "An' I hope Heloise gits roasted, haw-w-w-w-w! Well, I fooled them bums! Goering, huh! He is just another pushover, as look how he fell for that trick. Boys, they put enough gas in this buggy, anyway.

Phineas hit up against five Albs over Metz, and they closed in on him. But out of the haze to the south came Captain Howell, Bump Gillis, *et al—* and they were really in the pink that fine morning. Phineas never liked his pals better than he liked them at that moment. Howell knew something was sadly amiss because he saw Albs trying to knock a D-7 down. Following a

hunch, he led his salty buckos to the Kraut crate's rescue. Phineas just kept on going—for without bullets he was of little use.

The Fokker D-7 caused some jitters on the drome of the Ninth when it finally began circling high over the drome. Like a man who throws his hat in through the door of his domicile to see if it will be allowed to stay there, Phineas tossed the contents of one of his pockets overside. Sergeant Casey picked up a rubber gun and then waved Phineas in.

"Well, how is everything, bums?" Phineas grinned when he got out of the Boche ship. "Thought I was dead again, I bet."

"Yeah," Casey said. "But I'll keep on hopin'—I—er—hopin' you'll always come back. Ha! Ha!"

Phineas went over to meet the Old Man. Garrity hid his feelings from the Boonetown wonder. He said: "Another Hun wagon, huh? You bring back more of them than you do Spads. Well, what didn't you do this time?"

"I did everything but bring you the Kaiser," Phineas said modestly. "The only way the Boche will get fueled now is—by *Leutnant* Pinkham as usual. Wait until I tell you—"

AFTERMATH! Three Dutchmen in the doldrums gathered in a house not far from Goering's skeleton drome. Goering said: "I think I keep out of politics, *mein freunds*. I'd rather go hunting der wild boars—tanks just der same—"

"Ja? Ho! Ho!" said the Jerry corporal with the big black mustache. "*Nein—Herr* Goering. We need you, *ja!* What would der Germans say if dey knew you ledt Pingham escape? Und what he did to you? *Ach Gott!* In Berlin dey laugh at Hermann Goering, und—"

"I change my mind," Goering groaned. "But you be careful, Adolph, und watch your step, *ja*. Does der German people want to listen to *ein* paper hangar? Who vas not born efen in Germ—"

"*Nein*. You must not haff der bad feelings, Hermann. Not until I get a good start must dey know vhat I vas. I vill make you head of der air force of der new Reich, so keep it der big mouth shut! Und you, Joe Goebbels—hah? I don't like der look in your eye. You stick *mit* us or maybe I vill tell der gross General von Strudel-dorff who idt vas who flirts *mit* his *fraulein* when he *ist* on der front. Und den dere vas der two-timing *mit* der *fraulein* of Colonel-General von Bock-wurser—"

"That *ist* enough, Adolph. Ha! Ha! You know I am your pal!"

"So! Now ve must get *ein* name for der new party. Something *mit* power in idt. Many names I haff, but I don't like—er—*was ist*, Hermann?"

Goering was looking at a pamphlet he had found on the floor of his quarters after Phineas had left. Adolph looked over his shoulder. The pamphlet said, "Enroll in the N.A.Z.I. now! You Cannot Afford To Wait!"

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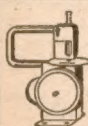
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on pages 72 and 78 of this issue



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and with a veteran instructor guiding him by interphone from the other cockpit.

And then, at last, will come that memorable, thrilling moment when he's sent up in his own ship, flying solo, even stunting—to prove that he is indeed a qualified pilot and truly eligible to wear those coveted silver "wings."

In short, he'll be a pilot in his own right!

Then, too, if he elects—and if a munificent Congress has voted enough

Air Corps appropriation funds—there may come a day when our Lieutenant George, erstwhile Flying Cadet, will go on a three-year tour of active duty with a tactical unit of the Army Air Corps, receiving the \$125 monthly base pay of a Regular Army Second Lieutenant together with the approximately \$60 a month allowed all Army "shavetails" for separate rental and subsistence allowance.

Happy day! And—Happy Landings!

Flying Aces Club News

(Continued from page 30)

judges — Wing Commander Herb Powell, Model Editor Dave Cooke, and National Adjutant Clint Randall—had one big headache trying to choose the photo that topped our award this month. But at long last, the judges agreed that Gordon Vars, of Bellefonte, Pa., merited the medal this trip for the swell work on his Curtiss A-18 (see photo) built from plans in the June, 1938, FLYING ACES. Congrats on winning that D.S.M., Gordy. You sure deserve it!

And for you fellows who haven't as yet entered our contest, here's all you have to do—

Mail us photos of models you've

built from F.A. plans. And if your picture proves you to be the top-notch modeler of the month, we'll send you a handsome Distinguished Service Medal as your award. Just address your letters to Clint Randall, D.S.M. Contest, c/o FLYING ACES, 67 West 44 St., New York City. Remember, though, only FLYING ACES CLUB members may participate.

This is the last time we'll meet on the Club page until after the holidays, boys, so Clint leaves you by saying *Nga Mihi o te Kirihihimete*. Which in the Maori lingo, one of our New Zealand F.A.C.'s tells us, simply means—Christmas greetings!

Presenting the Curtiss-Wright 19-R

(Continued from page 37)

as is possible with putty. On the other hand, putty is much easier to work with and does not require as much of a sanding job.

However, choose the material that you have had the most experience with, be it putty or plastic wood, and form the fillets carefully both between the fuselage and wing and at the tail section between the rudder and horizontal stabilizer. Allow these applications to dry overnight and then finish off with a gentle rubbing with fine sandpaper. And be doubly sure to be careful while fairing the fillets into the body and wing because if the plastic wood or putty chips off it will take longer to finish the model since your fillets must be left to dry for a considerable length of time.

Filleting material is also applied around the landing gear housing where contact is made with the wing. And don't be stingy with your plastic because it is much better to have too much of a fillet than not enough.

The next step is to apply two or three coats of wood filler over the entire model. Coat the first layer on heavily and wet sand until the fuselage is smooth. Then repeat the procedure, applying a finer layer of filler.

PAINTING THE MODEL

IF YOU wish to have your miniature as a replica of the 19-R, paint the model entirely bright aluminum. This, you know, will give the appearance of Alclad, of which the real ship is constructed. However, be careful in your selection of paint because a dull or "lumpy" paint will not be effective for producing a realistic finish.

The key to colors for the Bolivian air force is given on the lower left hand corner of Plate 2. The concentric circles of the insignia are painted on both the upper and lower surfaces of the wing. And the horizontal bars on the rudder are identical on both sides.

Try This Bell XP-39 Fighter

(Continued from page 42)

warping the tail surfaces until the maximum glide is obtained. Then start with short power flights and gradually increase the turns to maximum.

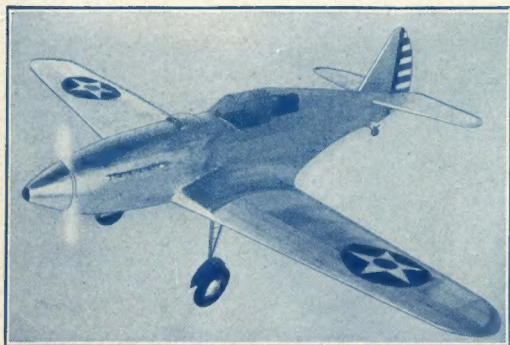
Our model flew very well on two strands of 1/8" rubber, but it showed real pursuit super-speed on two strands of 3/16". And although this

larger rubber is more powerful, it is suggested that you use the 1/8" power-plant if you intend to fly the craft indoors.

That's the whole story, fellows. She's all yours now, and we hope that this striking miniature of the sleek Army Bell will give you scores and scores of top-notch flights!

THE FURY OF THE SKIES IS MET BY THESE WARRING ACES

New! International Fighters!



ALL NEWSPAPER HEADLINERS!

U. S. ARMY CURTISS P-40

28" WINGSPAN

America's newest, most modern demon of the skies. Powered with a 1300 H. P. chemically cooled Motor and bristling with machine guns, this ship is capable of defending our shores from invaders in any form.

The model has the sleek lines and beauty of her prototype. It is hardly possible to realize that such an exact copy could be so easily built. Berkeley's exclusive type of construction makes this possible.

Balsa covered leading edges, "Gas model type" wire landing gear, and "semi-planked" fuselage make it a crash-proof model.

Colors: Silver and Yellow.

Complete Kit →

**\$1.00
PP**

MESSERSCHMITT Interceptor Fighter

27" WINGSPAN

No authority on international armament can overlook this ship that broke all existing land speed records at 392 m.p.h. The kit includes everything to build the model as pictured, with the exclusive features of balsa covered leading edges, "semi-planked" fuselage and wire reinforced landing gear. Color: Flaming Red.



U. S. ARMY CONSOLIDATED P-30



FRENCH MUREAUX PURSUIT



BRITISH HAWKER SUPER-FURY

Complete Kit →

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Re-Designed International Fighters...

U.S. ARMY CONSOLIDATED P-30

25 3/4" WINGSPAN. This fighter is reported to have a top speed of 252 m.p.h., when powered with a Curtiss Conquer engine. The model has beautiful clean lines. Builders report it to be one of the most stable models they have ever built. Colors: Army Blue, Orange, and Silver.

Complete Kit →

**\$1.00
PP**

FRENCH MUREAUX PURSUIT

24 3/4" WINGSPAN. France, with the world's largest air force, places her pride in the Mureaux Pursuit. It is highly developed and has a 231 m.p.h. top speed. The model has been called by many the "finest flying scale model ever designed." Flights of two minutes are not exceptional. If you intend to enter flying scale model contests, you can expect the Mureaux (pronounced Moor-O) to win for you. Colors: Red and Blue.

Complete Kit →

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BRITISH HAWKER SUPER-FURY

24" WINGSPAN. Can you imagine a military biplane swooping across the sky at 273 m.p.h.? The British Hawker Super-Fury represents the latest development in British fighters. The model with its clipped wings, long slender fuselage, performs like its prototype. Without a doubt, this kit is the biggest dollar value on the market. Colors: Silver and White.

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All International Fighter Series Kits Include:

All balsa parts printed out; special sheet balsa for reinforcing the leading edge of the wing, doubling its strength; wire for landing gear; carved propeller; colored, clear dope and an extra large tube of cement; all strips and blocks cut to size; metal fittings; covering material; insignia; full size plans; all in an attractive box.

- WITH "SEMI-PLANKED" FUSELAGE
- "GAS MODEL" LANDING GEAR
- BALSA COVERED LEADING EDGE
- INTERNATIONAL INSIGNIA



DUTCH FOKKER D-XVII

24" WINGSPAN. The modern Fokker Fighter. Designed by Tony Fokker, famous for his World War Planes. It is the backbone of the Dutch Air Forces. The model is sturdy and well designed for flying. Letters on file report it to be a consistent flyer for as high as 95 seconds. Colors: Gray and White.

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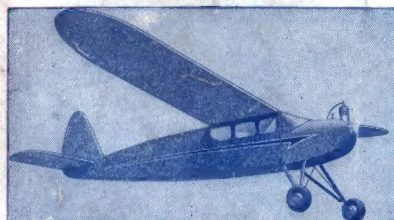
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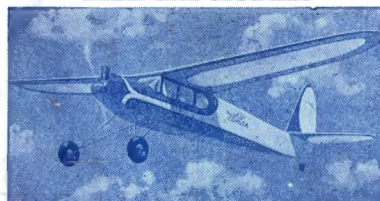
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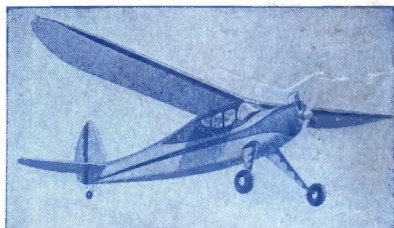
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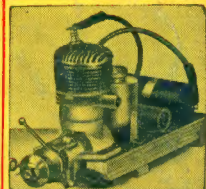
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